

**UNDERGROUND INJECTION CONTROL
PERMIT APPLICATION**

**Ute Tribal # 20-11
1959' FSL & 2033' FWL
Sec. 20, T5S-R3W
Duchesne County, Utah
API # 43-013-34049**

July 2015

Prepared for:
Bruce Suchomel
Groundwater Program, Mail Code 8P-W-UIC
U.S. Environmental Protection Agency
1595 Wynkoop St
Denver, CO 80202-1129

Prepared by:
Petroglyph Energy, INC.
960 Broadway Avenue, Suite 500, P.O. Box 70019
Boise, Idaho 83707
(208) 685-7600
FAX (208) 685-7605

LIST OF ATTACHMENTS

- Attachment No. 1 Area Topography Map
- Attachment No. 2 Site Map
- Attachment No. 3 Map of the A-Marker surface
- Attachment No. 4 Cross-Sections of the injection formation
- Attachment No. 5 Water Analysis
- Attachment No. 6 Completion data for all wells in the AOR
- Attachment No. 7 CBL for the UIC well
- Attachment No. 8 Open hole log for the UIC well
- Attachment No. 9 List of owners and Affidavit Notification
- Attachment No. 10 Well bore diagrams for the UIC well
- Attachment No. 11 P&A procedure
- Attachment No. 12 MIT procedure
- Attachment No. 13 Surety Bond letter

SUMMARY DOCUMENT
UIC WELL APPLICATION
Ute Tribal 20-11
API # 43-013-34049

The following document contains information provided in support of the application for the conversion of the Ute Tribal 20-11 well to an injection well in the Green River formation in the Antelope Creek Field in Duchesne County, Utah.

The Antelope Creek Field falls within the Uintah and Ouray Indian reservations and is within Indian Country; therefore, for facilities located on the reservation, only EPA-issued UIC permits are necessary for compliance with UIC regulations.

The EPA has issued an Area Permit #UT20736-00000 for the Underground Injection Control for the Antelope Creek Field. This area permit allows for additional producing wells to be converted to injection wells for enhanced recovery.

- (1) Petroglyph Energy, Inc. (Petroglyph) is the operator and only working interest owner of wells located in the Antelope creek Field, Duchesne County, Utah. Petroglyph's business address is provided below:

Petroglyph Energy, Inc.
960 Broadway Avenue, Suite 500
P.O. Box 70019
Boise, ID 83707

- (2) Enclosed as Attachment No. 1 is a topographic map of a portion of the Antelope Creek Field, identifying all wells located in this area. The legal location for the Ute Tribal 20-11 is 1959' FSL & 2033' FWL NE/SW Sec. 20, T5S-R3W.
- (3) Attachment No. 2 is a map of the well. This map shows a circle with a ¼ mile radius centered on the Ute Tribal 20-11 well. The ¼ mile radius encompasses the area of review, AOR, within which Petroglyph is required to investigate all wells for mechanical integrity. The ¼ mile radius also identifies mineral ownership; all lands within the AOR are leased to Petroglyph by the Ute Tribe as indicated by yellow shading. The AOR has Ute Tribal 20-06, Ute Tribal 20-10, and Ute Tribal 20-14 well(s) located in its ¼ mile radius.

- (4) Petroglyph proposes to utilize the Ute Tribal 20-11 as an injection well for enhanced recovery in the Antelope Creek Field.
- (5) Injection Zone – The injection intervals are between 4049' and 6029' True Vertical Depth and located in the lower portion of the Green River Formation. The injection zone is confined within a 1980' section between the Green River "A" Lime marker bed and the top of the Basal Carbonate in the lower part of the formation. The injection zone is composed of lenticular calcareous sandstones interbedded with low permeable carbonates and calcareous shales. The lenticular sandstones vary in thickness from 1 to 30 feet.

Confining Zone – The overall confining strata above the injection zone consists of impermeable Green River calcareous shales and continuous beds of microcrystalline dolostone. The confining zone in the Ute Tribal 20-11 is 225 feet thick.

Attachment No. 3 is a structure map of the A-Marker surface.

Attachment No. 4 is a cross-section of the injection interval and confining zone.

- (6) Enclosed as Attachment No. 5 are standard analyses of produced water from three batteries that currently serve as central handling facilities for all project producing wells. The analysis of the Green River formation water from the Ute Tribal 18-08 Satellite Battery is 12805 mg/L of total dissolved solids (TDS), Ute Tribal 21-11 Satellite Battery is 15659 mg/L TDS, and Ute Tribal 34-12-D3 Satellite Battery is 14590 mg/L TDS.

Injectate in the field is a mixture of produced water and fresh make-up water. The nearest injection well is the Ute Tribal 19-09, the most recent analysis of the water being injected into the Green River formation at this location is 10130 mg/L TDS. This analysis is also included in Attachment No. 5.

- (7) A summary of completion data from the Ute Tribal 20-11 and offset wells in the AOR are included in Attachment No. 6
- (8) The cement bond log is included in Attachment No. 7.
- (9) The open hole log for the Ute Tribal 20-11 is included in Attachment No. 8.

- (10) The Antelope Creek Field is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy. At the Ute Tribal 20-11 location, all mineral owners, surface owners and operators located within the AOR ¼ mile radius have been notified of the submitted EPA application to convert to injection. Attachment No. 9 is the Affidavit of Notification to all owners.
- (11) Petroglyph requests a maximum surface injection pressure of **1900psi**. The EPA Area Permit No. UT20736-00000 uses the formula:

$$P_m = (0.88 \text{psi}/\text{ft} - 0.43 \text{psi}/\text{ft}(S_g)) D$$

Where:

P_m = Maximum surface injection pressure

0.88psi/ft = Fracture gradient

D = Top perforation depth

0.43psi/ft = Hydrostatic pressure/hydraulic head

S_g = Specific gravity of injection fluid

For the Ute Tribal 20-11:

$$1908 \text{psi} = (0.88 \text{psi}/\text{ft} - 0.43(1.00)) 4240 \text{ft}$$

EPA Area Permit No. 20736-00000 further caps maximum surface pressure at 1900psi.

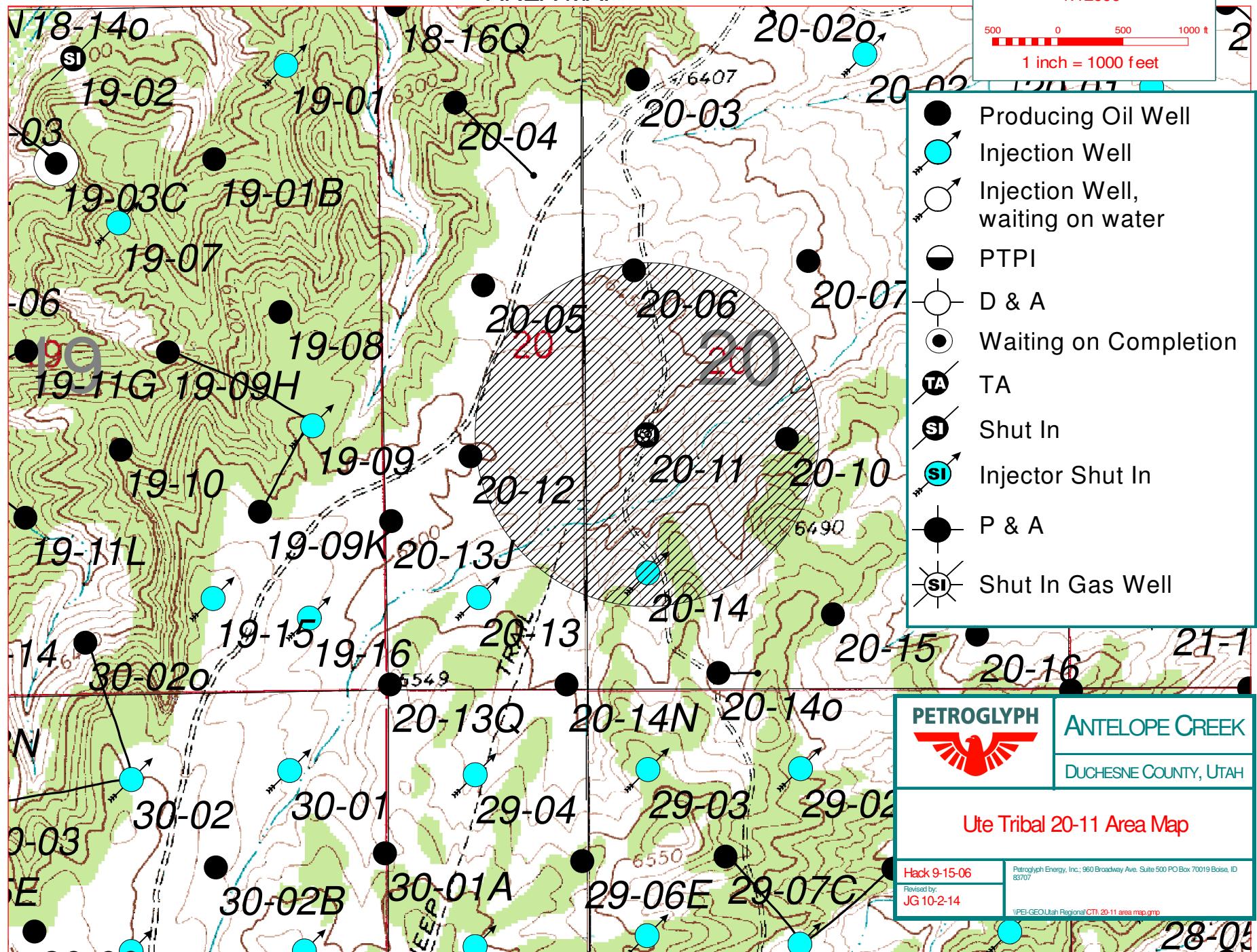
- (12) Three wellbore diagrams for the Ute Tribal 20-11 are in Attachment No. 10. One diagram is for production, one for injection, and one for Plug & Abandonment (P&A).
- (13) The P&A procedure for this well is shown in Attachment No. 11.
- (14) Once the draft permit is issued, Petroglyph will conduct a Mechanical Integrity Test and a static bottom-hole pressure test. The MIT procedure is contained in Attachment No. 12. The conversion work will be satisfactorily completed and submitted to the EPA on Form 7520-12. A wellbore schematic will be included with this form.

- (15) Petroglyph will give proof of financial responsibility by posting a surety bond for the UIC well prior to final permit approval. A copy of this letter is contained in Attachment No. 13.
- (16) Petroglyph will install various gauges on the well so that the injection pressure and tubing/casing annulus pressure can be monitored. The well will be equipped with a flow meter with a cumulative volume recorder.

ATTACHMENT NO. 1

AREA MAP

ATTACHMENT NO. 1:
AREA MAP



ATTACHMENT NO. 2

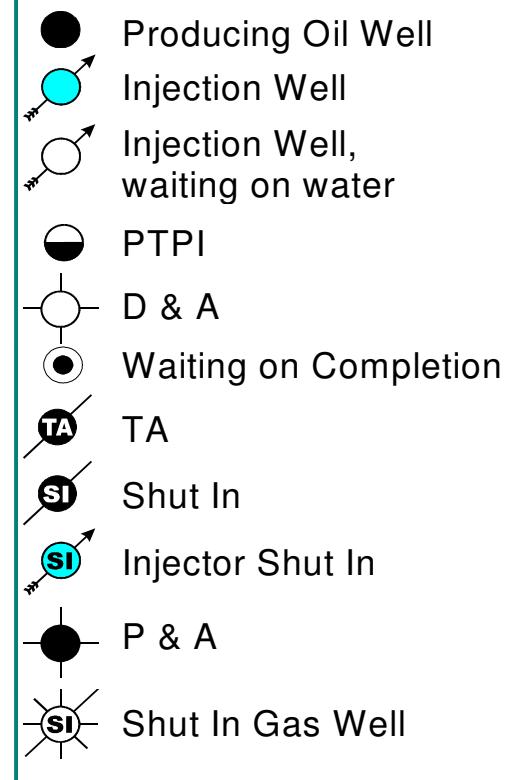
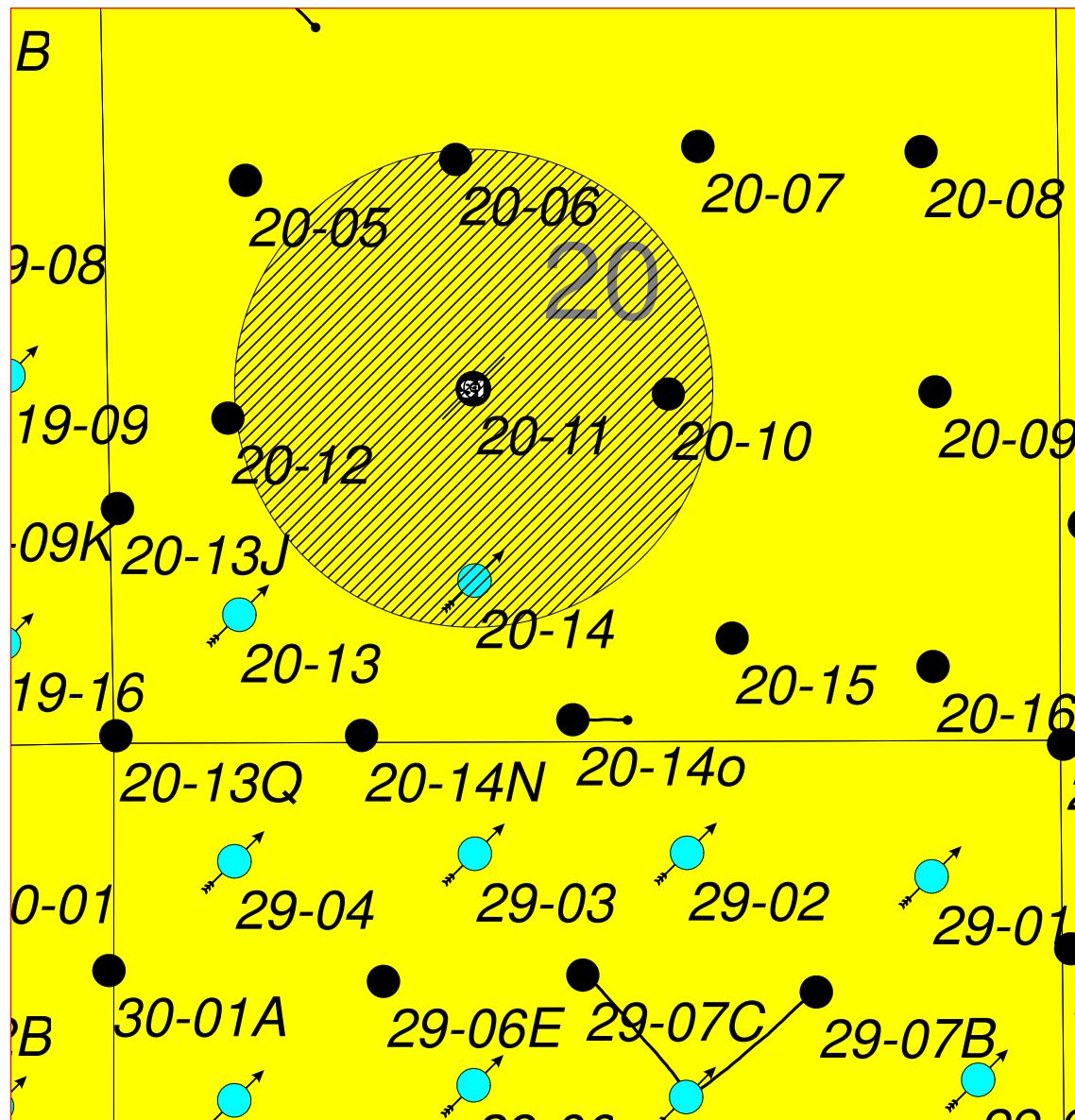
SITE MAP

RADIUS MAP OF ADJACENT WELLS

ATTACHMENT NO. 2:
SITE MAP

1:12000

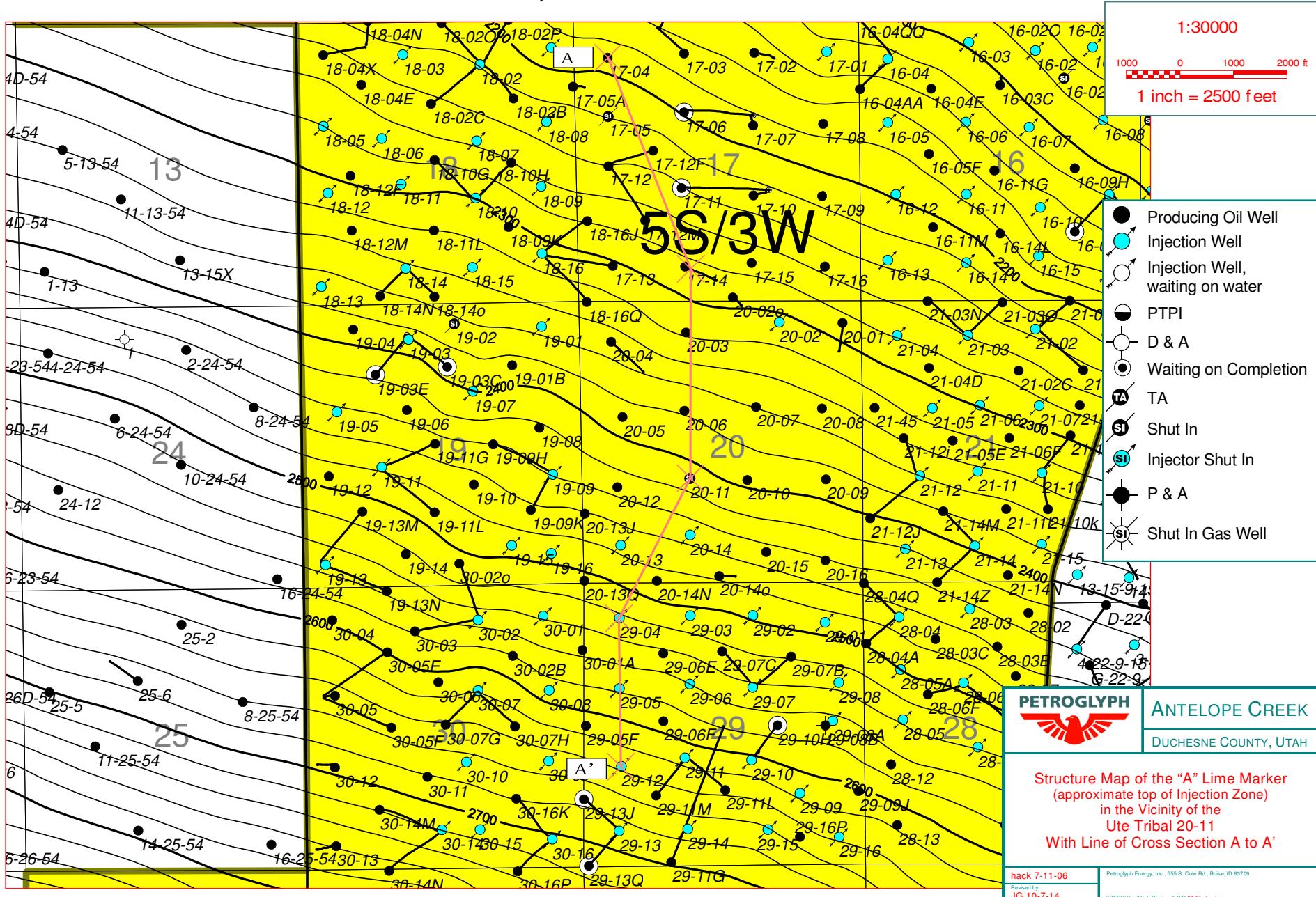
500 0 500 1000 ft
1 inch = 1000 feet



ATTACHMENT NO. 3

MAP OF THE A-LIME MARKER SURFACE

ATTACHMENT NO. 3:
Map of the "A" Lime Marker



ATTACHMENT NO. 4

CROSS SECTIONS OF THE INJECTION FORMATION

Structural Cross Section A to A' in the Vicinity of Ute Tribal 20-11

43013314640000 4244 ft 43013520680000 3914 ft 43013340490000 2945 ft 43013308510000 2778 ft 43013317970000

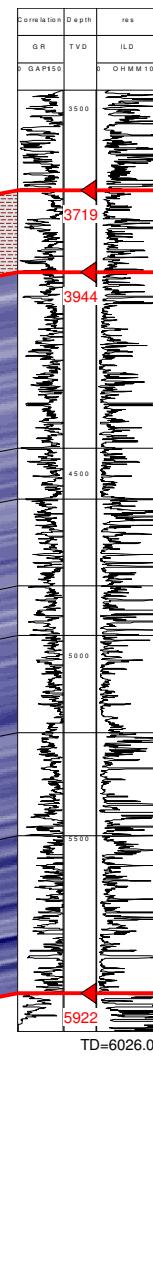
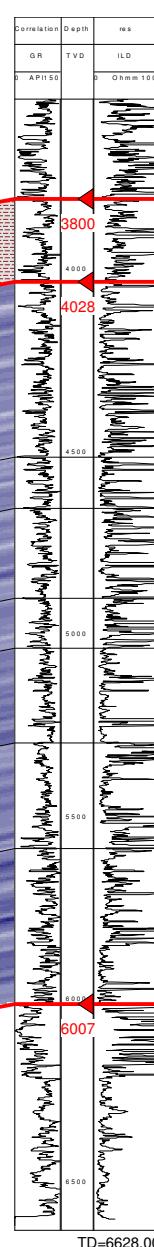
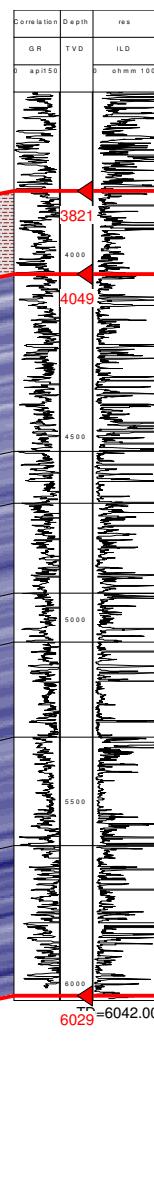
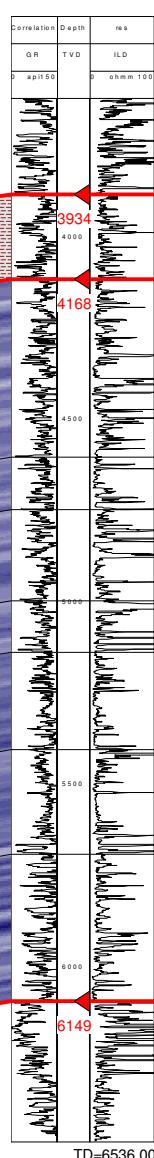
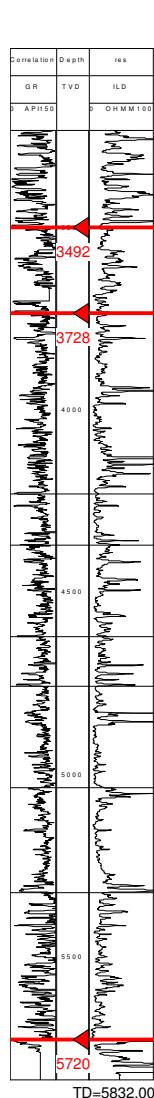
PETROGLYPH OPERATING COMPANY INC
UTE TRIBAL 17-04
697 FNL 636 FWL
TWP: 5 S - Range: 3 W - Sec. 17

PETROGLYPH OPERATING COMPANY
UTE TRIBAL 17-14
370 FSL 2543 FWL
TWP: 5 S - Range: 3 W - Sec. 17

PETROGLYPH OPERATING COMPANY INC
UTE TRIBAL 20-11
1959 FSL 2033 FWL
TWP: 5 S - Range: 3 W - Sec. 20

PETROGLYPH OPERATING COMPANY INC
Ute Tribal 29-04
660 FNL 660 FWL
TWP: 5 S - Range: 3 W - Sec. 29

PETROGLYPH OPERATING COMPANY INC
Ute Tribal 29-12
1865 FSL 699 FWL
TWP: 5 S - Range: 3 W - Sec. 29



ATTACHMENT NO. 5

WATER ANALYSIS

Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS
 Well Name: UTE TRIBAL 18-08 SATELLITE, DUCHESN
 Sample Point: PLANT DISCHARGE COMPLETE
 Sample Date: 4/21/2015
 Sample ID: WA-307075

Sales Rep: James Patry
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	4/21/2015
System Temperature 1 (°F):	60.00
System Pressure 1 (psig):	14.70
System Temperature 2 (°F):	180.00
System Pressure 2 (psig):	2000.00
Calculated Density (g/ml):	1.0061
pH:	8.50
Calculated TDS (mg/L):	12805.08
CO ₂ in Gas (%):	
Dissolved CO ₂ (mg/L):	0.00
H ₂ S in Gas (%):	
H ₂ S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	mg/L	Anions	mg/L
Sodium (Na):	4541.75	Chloride (Cl):	6000.00
Potassium (K):	41.78	Sulfate (SO ₄):	163.00
Magnesium (Mg):	28.63	Bicarbonate (HCO ₃):	1952.00
Calcium (Ca):	67.44	Carbonate (CO ₃):	
Strontium (Sr):	5.41	Acetic Acid (CH ₃ COO):	
Barium (Ba):	0.90	Propionic Acid (C ₂ H ₅ COO):	
Iron (Fe):	2.74	Butanoic Acid (C ₃ H ₇ COO):	
Zinc (Zn):	1.29	Isobutyric Acid ((CH ₃) ₂ CHCOO):	
Lead (Pb):	0.05	Fluoride (F):	
Ammonia NH ₃ :		Bromine (Br):	
Manganese (Mn):	0.09	Silica (SiO ₂):	

Notes:

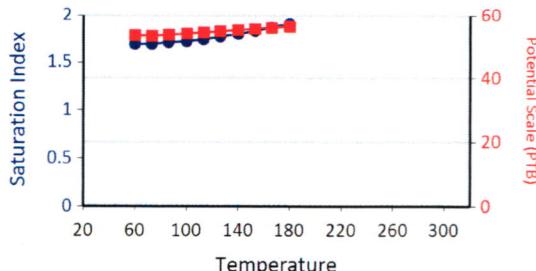
(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ ·2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.91	56.41	0.09	0.09	0.00	0.00	2.59	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.87	56.05	0.13	0.14	0.00	0.00	2.54	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.83	55.66	0.19	0.19	0.00	0.00	2.49	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.80	55.27	0.26	0.24	0.00	0.00	2.44	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.77	54.86	0.33	0.29	0.00	0.00	2.38	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.74	54.46	0.42	0.33	0.00	0.00	2.32	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.72	54.08	0.52	0.38	0.00	0.00	2.26	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.71	53.72	0.64	0.41	0.00	0.00	2.20	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.69	53.39	0.77	0.45	0.00	0.00	2.14	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.69	53.56	0.92	0.47	0.00	0.00	2.08	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

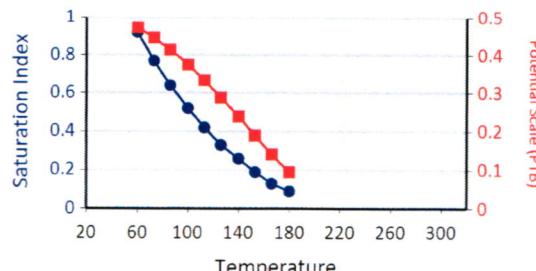
Temp (°F)	PSI	Hemihydrate CaSO ₄ ·0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.09	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.69	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	0.81	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

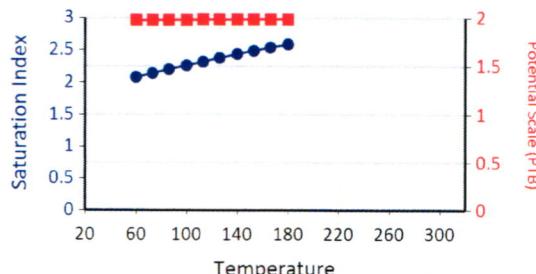
Calcium Carbonate



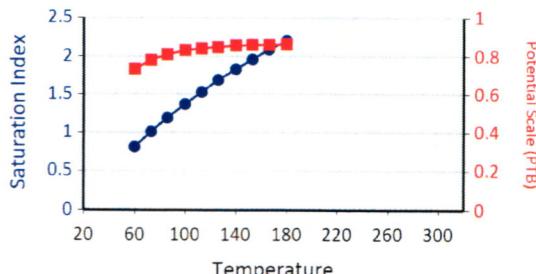
Barium Sulfate



Iron Carbonate



Zinc Carbonate



Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS
 Well Name: UTE TRIBAL 21-11 SATELLITE, DUCHESNE
 Sample Point: PLANT DISCHARGE COMPLETE
 Sample Date: 4/21/2015
 Sample ID: WA-307071

Sales Rep: James Patry
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics											
Test Date:	4/21/2015	Cations					mg/L		Anions				
System Temperature 1 (°F):	60.00	Sodium (Na):					5585.76		Chloride (Cl):			7000.00	
System Pressure 1 (psig):	14.70	Potassium (K):					55.43		Sulfate (SO ₄):			277.00	
System Temperature 2 (°F):	180.00	Magnesium (Mg):					10.62		Bicarbonate (HCO ₃):			2684.00	
System Pressure 2 (psig):	2000.00	Calcium (Ca):					30.52		Carbonate (CO ₃):				
Calculated Density (g/ml):	1.0081	Strontium (Sr):					6.47		Acetic Acid (CH ₃ COO):				
pH:	8.70	Barium (Ba):					1.02		Propionic Acid (C ₃ H ₅ COO):				
Calculated TDS (mg/L):	15659.01	Iron (Fe):					1.09		Butanoic Acid (C ₃ H ₇ COO):				
CO ₂ in Gas (%):		Zinc (Zn):					6.88		Isobutyric Acid ((CH ₃) ₂ CHCOO):				
Dissolved CO ₂ (mg/L):	0.00	Lead (Pb):					0.08		Fluoride (F):				
H ₂ S in Gas (%):		Ammonia NH ₃ :							Bromine (Br):				
H ₂ S in Water (mg/L):	35.00	Manganese (Mn):					0.14		Silica (SiO ₂):				

Notes:

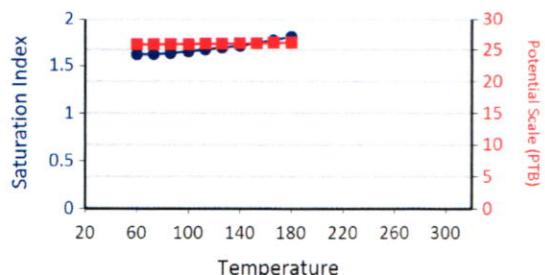
(PTB = Pounds per Thousand Barrels)

Calcium Carbonate				Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO ₄ -2H ₂ O		Celestite SrSO ₄		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.81	26.18	0.28	0.29	3.60	0.60	2.44	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.37	3.59
166	1779	1.77	26.13	0.33	0.32	3.61	0.60	2.40	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.52	3.59
153	1558	1.74	26.09	0.39	0.36	3.63	0.60	2.35	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.68	3.59
140	1338	1.71	26.05	0.45	0.39	3.67	0.60	2.30	0.79	0.00	0.00	0.00	0.00	0.00	0.00	11.86	3.59
126	1117	1.69	26.00	0.53	0.43	3.72	0.60	2.25	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.05	3.59
113	897	1.67	25.97	0.62	0.46	3.79	0.60	2.20	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.27	3.59
100	676	1.65	25.93	0.72	0.49	3.87	0.60	2.14	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.50	3.59
86	455	1.63	25.91	0.84	0.52	3.97	0.60	2.08	0.79	0.00	0.00	0.00	0.00	0.00	0.00	12.76	3.59
73	235	1.62	25.88	0.97	0.54	4.09	0.60	2.02	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.04	3.59
60	14	1.62	25.87	1.12	0.56	4.23	0.60	1.96	0.79	0.00	0.00	0.00	0.00	0.00	0.00	13.34	3.59

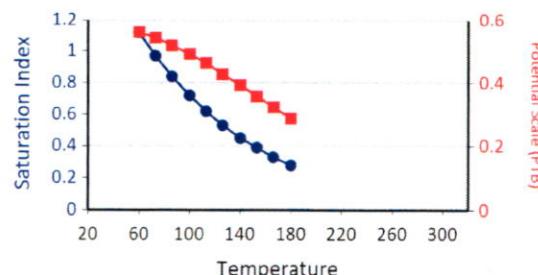
Hemihydrate CaSO ₄ *0.5H ₂ O				Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	3.15	4.62	10.72	0.03	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	3.04	4.62	10.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	2.92	4.62	11.24	0.03	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	2.79	4.62	11.54	0.03	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	2.65	4.62	11.86	0.03	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	2.50	4.61	12.21	0.03	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	2.34	4.61	12.60	0.03	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	2.17	4.60	13.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	1.99	4.58	13.46	0.03	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.00	1.79	4.55	13.95	0.03	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

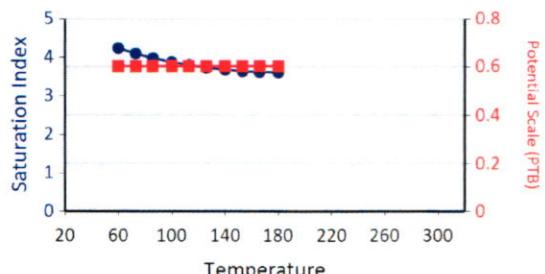
Calcium Carbonate



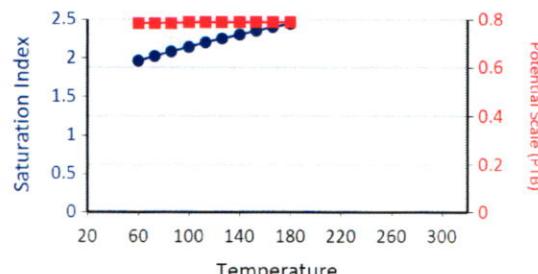
Barium Sulfate



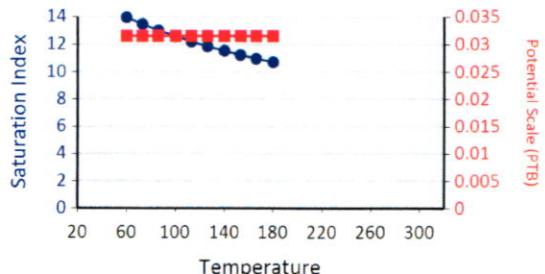
Iron Sulfide



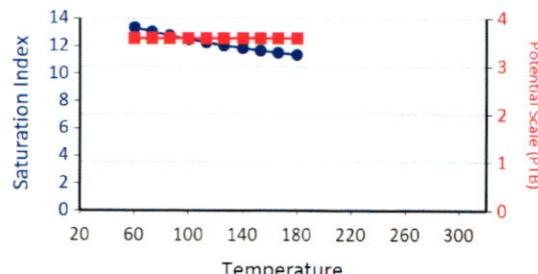
Iron Carbonate



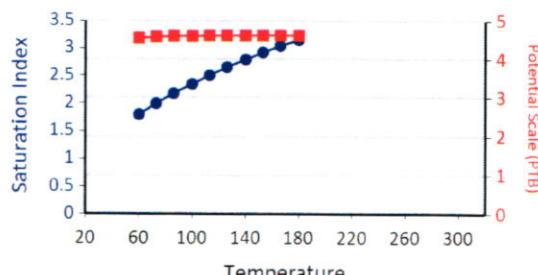
Lead Sulfide



Zinc Sulfide



Zinc Carbonate



Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS
 Well Name: UTE TRIBAL 34-12D3 SATELLITE, DUCHE
 Sample Point: PLANT DISCHARGE
 Sample Date: 4/21/2015
 Sample ID: WA-307067

Sales Rep: James Patry
 Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from
 Brine Chemistry Consortium (Rice University)

Sample Specifics	
Test Date:	4/21/2015
System Temperature 1 (°F):	60.00
System Pressure 1 (psig):	14.70
System Temperature 2 (°F):	180.00
System Pressure 2 (psig):	2000.00
Calculated Density (g/ml):	1.0073
pH:	8.50
Calculated TDS (mg/L):	14589.98
CO2 in Gas (%):	
Dissolved CO2 (mg/L):	0.00
H2S in Gas (%):	
H2S in Water (mg/L):	0.00

Analysis @ Properties in Sample Specifics			
Cations	mg/L	Anions	mg/L
Sodium (Na):	5277.36	Chloride (Cl):	7000.00
Potassium (K):	65.03	Sulfate (SO4):	0.00
Magnesium (Mg):	7.80	Bicarbonate (HCO3):	2196.00
Calcium (Ca):	24.60	Carbonate (CO3):	
Strontium (Sr):	5.20	Acetic Acid (CH3COO):	
Barium (Ba):	12.37	Propionic Acid (C2H5COO):	
Iron (Fe):	0.34	Butanoic Acid (C3H7COO):	
Zinc (Zn):	1.16	Isobutyric Acid ((CH3)2CHCOO):	
Lead (Pb):	0.04	Fluoride (F):	
Ammonia NH3:		Bromine (Br):	
Manganese (Mn):	0.08	Silica (SiO2):	

Notes:

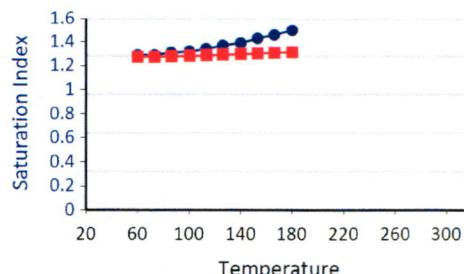
(PTB = Pounds per Thousand Barrels)

Temp (°F)	PSI	Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	1.50	20.58	0.00	0.00	0.00	0.00	1.72	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	1.46	20.48	0.00	0.00	0.00	0.00	1.67	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	1.43	20.39	0.00	0.00	0.00	0.00	1.63	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	1.39	20.30	0.00	0.00	0.00	0.00	1.57	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	1.37	20.21	0.00	0.00	0.00	0.00	1.52	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	1.34	20.13	0.00	0.00	0.00	0.00	1.46	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	1.32	20.05	0.00	0.00	0.00	0.00	1.40	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	1.31	19.99	0.00	0.00	0.00	0.00	1.34	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	1.29	19.93	0.00	0.00	0.00	0.00	1.28	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	1.29	19.93	0.00	0.00	0.00	0.00	1.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

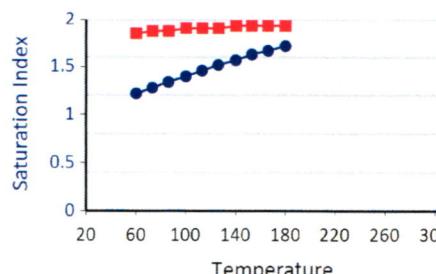
Temp (°F)	PSI	Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
180	2000	0.00	0.00	0.00	0.00	0.00	0.00	2.16	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
166	1779	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153	1558	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
140	1338	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	1117	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113	897	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	676	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	455	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	235	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	14	0.00	0.00	0.00	0.00	0.00	0.79	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

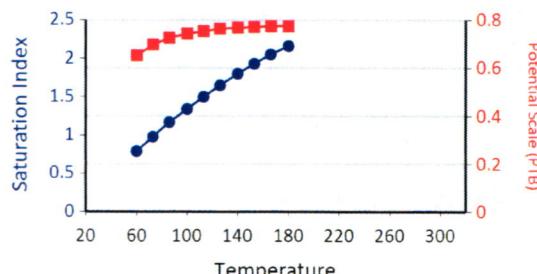
Calcium Carbonate



Iron Carbonate



Zinc Carbonate



Water Analysis Report

Production Company: PETROGLYPH OPERATING CO INC - EBUS

Well Name: UTE TRIBAL 19-09 INJ, DUCHESNE

Sample Point: WELLHEAD

Sample Date: 1/7/2015

Sample ID: WA-297431

Sales Rep: James Patry

Lab Tech: Gary Winegar

Scaling potential predicted using ScaleSoftPitzer from
Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics									
		Cations				mg/L		Anions			
Test Date:	1/14/2015	Sodium (Na):		2789.09		Chloride (Cl):					5000.00
System Temperature 1 (°F):	160	Potassium (K):		41.23		Sulfate (SO4):					133.00
System Pressure 1 (psig):	1300	Magnesium (Mg):		21.03		Bicarbonate (HCO3):					2074.00
System Temperature 2 (°F):	80	Calcium (Ca):		37.38		Carbonate (CO3):					
System Pressure 2 (psig):	15	Strontium (Sr):		4.94		Acetic Acid (CH3COO):					
Calculated Density (g/ml):	1.0041	Barium (Ba):		3.40		Propionic Acid (C2H5COO):					
pH:	6.50	Iron (Fe):		1.08		Butanoic Acid (C3H7COO):					
Calculated TDS (mg/L):	10129.85	Zinc (Zn):		0.65		Isobutyric Acid ((CH3)2CHCOO):					
CO2 in Gas (%):		Lead (Pb):		0.00		Fluoride (F):					
Dissolved CO2 (mg/L):	0.00	Ammonia NH3:				Bromine (Br):					
H2S in Gas (%):		Manganese (Mn):		0.08		Silica (SiO2):					23.97
H2S in Water (mg/L):	20.00										

Notes:

B=6.16 Al=.03 Li=1.35

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	1.33	1.93	1.30	0.56	0.03	0.06	0.00	0.00	0.00	0.00	0.00	0.00	9.12	0.34
88.00	157.00	0.00	0.00	1.25	1.91	1.15	0.55	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	8.85	0.34
97.00	300.00	0.00	0.00	1.17	1.89	1.13	0.55	0.07	0.12	0.00	0.00	0.00	0.00	0.00	0.00	8.74	0.34
106.00	443.00	0.00	0.00	1.10	1.86	1.13	0.55	0.13	0.20	0.00	0.00	0.00	0.00	0.00	0.00	8.63	0.34
115.00	585.00	0.00	0.00	1.04	1.84	1.13	0.55	0.19	0.28	0.00	0.00	0.00	0.00	0.00	0.00	8.53	0.34
124.00	728.00	0.00	0.00	0.98	1.81	1.13	0.55	0.26	0.35	0.00	0.00	0.00	0.00	0.00	0.00	8.44	0.34
133.00	871.00	0.00	0.00	0.92	1.78	1.15	0.55	0.32	0.41	0.00	0.00	0.00	0.00	0.00	0.00	8.35	0.34
142.00	1014.00	0.00	0.00	0.88	1.75	1.17	0.55	0.38	0.46	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.34
151.00	1157.00	0.00	0.00	0.83	1.72	1.19	0.56	0.44	0.50	0.00	0.00	0.00	0.00	0.00	0.00	8.21	0.34
160.00	1300.00	0.00	0.00	0.79	1.70	1.22	0.56	0.50	0.54	0.00	0.00	0.00	0.00	0.00	0.00	8.14	0.34

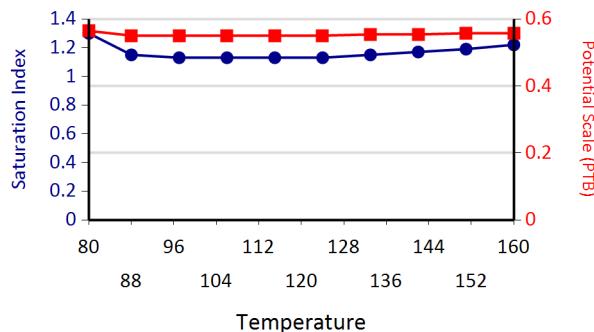
		Hemihydrate CaSO4·0.5H2O		Anhydrate CaSO4		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	14.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88.00	157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
106.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
115.00	585.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
124.00	728.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
133.00	871.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142.00	1014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151.00	1157.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Water Analysis Report

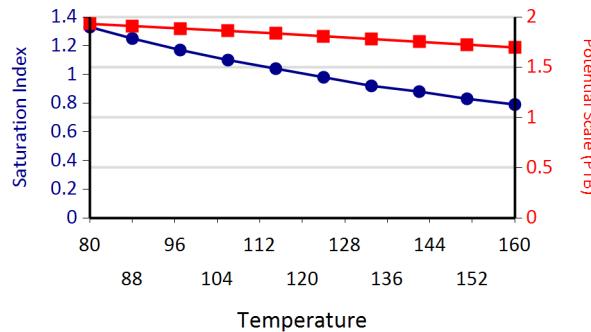
These scales have positive scaling potential under initial temperature and pressure: Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide

These scales have positive scaling potential under final temperature and pressure: Barium Sulfate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate

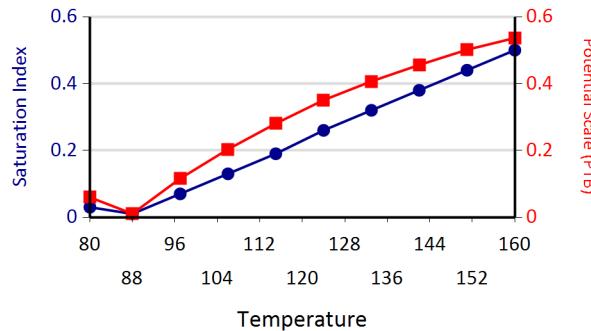
Iron Sulfide



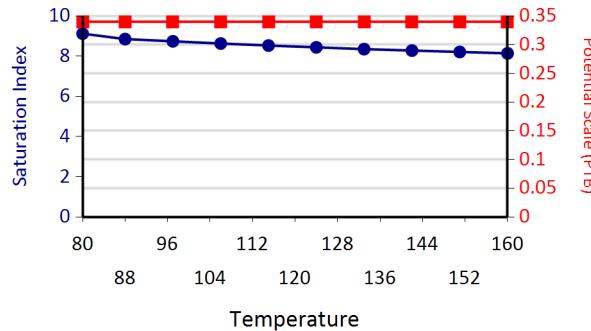
Barium Sulfate



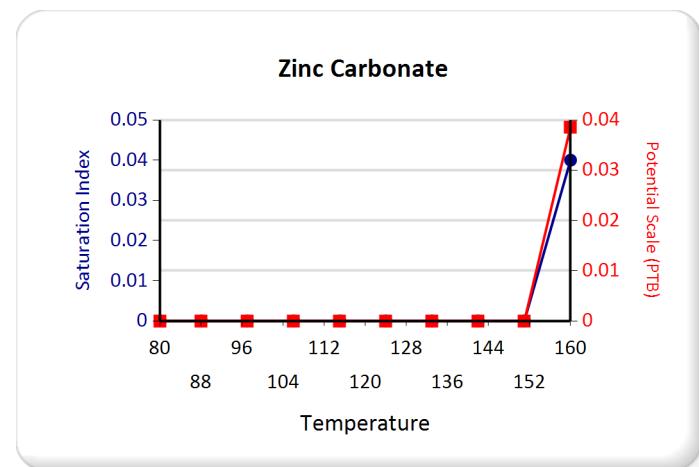
Iron Carbonate



Zinc Sulfide



Water Analysis Report



ATTACHMENT NO. 6

COMPLETION DATA FOR ALL WELLS IN THE AOR

Well Completion Data

Ute Tribal 20-11

Well	Surface Casing				Production Casing			
	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Cement Top	Size (inches)	Depth (ft KB)	Cement Amount (sx)	Estimated Cement Top
Ute Tribal 20-11	8-5/8	511	220	surface	5-1/2	6051	813	surface
Ute Tribal 20-06	8-5/8	317	200	surface	5-1/2	6025	1300	surface
Ute Tribal 20-10	8-5/8	521	350	surface	5-1/2	6128	865	surface
Ute Tribal 20-14	8-5/8	281	165	surface	5-1/2	6123	465	2600

ATTACHMENT NO. 7

CBL FOR THE UIC WELL

CASEDHOLE SOLUTIONS

CEMENT BOND LOG

Company	PETROGLYPH OPERATING COMPANY				
Well	UTE TRIBAL 20-11				
Field	ANTELOPE CREEK				
County	DUCHESTER	State	UTAH		
Location:	1959' FSL & 2033' FWL (NESE)			API#:	430133403000
Date	SEC 20	TMP 55	RGE 3W	Elevation	
Run Number	Log Measured From	GROUND LEVEL Elevation 6443.5'			K.B. 6457.5'
Depth Driller	Drilling Measured From	KELLY BUSHING			D.F. 6456.5'
Depth Logger		6-23-10		G.L. 3443.5'	
Bottom Logged Interval		ONE			
Top Log Interval		5971'			
Open Hole Size		50"			
Type Fluid		N/A			
Density / Viscosity		WATER			
Max. Recorded	IC	N/A			
Estimated Cement Top	140 (OH)				
Time Well Ready	0815				
Time Logger on Bottom	0840				
Equipment Number	112				
Locality	VERNAL				
Recorded By	BRAD BRADSTREET				
Witnessed By	LEON ROUSH				
Bit Number	Borehole Record	From	To	Size	Weight
				Tubing Record	
Casing Record	Size	Wgt/Ft	Top	Bottom	
Surface String					
First String	5.5"	15.5#	SURFACE	P.B.T.D.	
Production String					
Liner					

DUE OF OIL, GAS & MINING
JUL 29 2010
RECEIVED

Fold Here

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

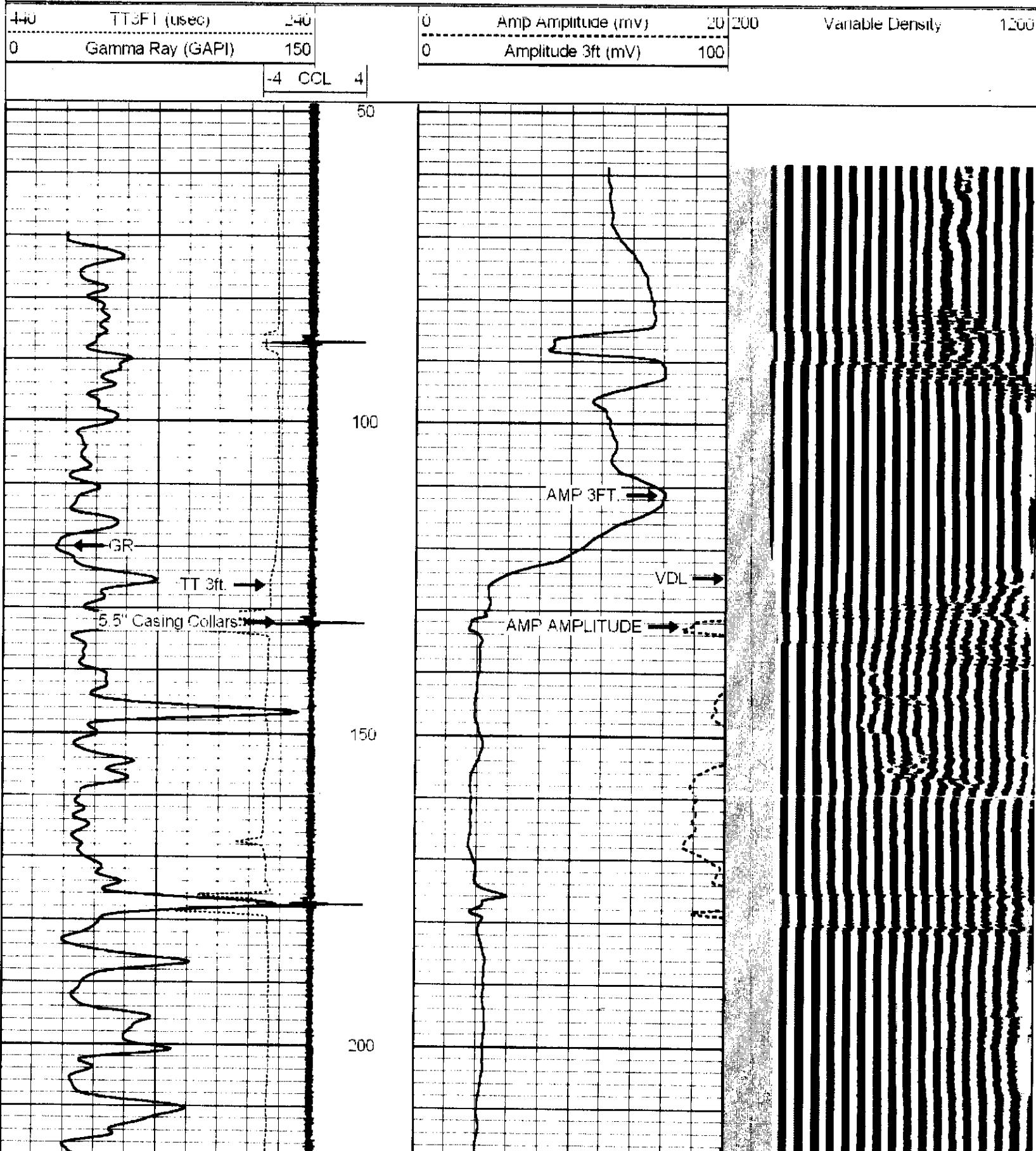
Comments

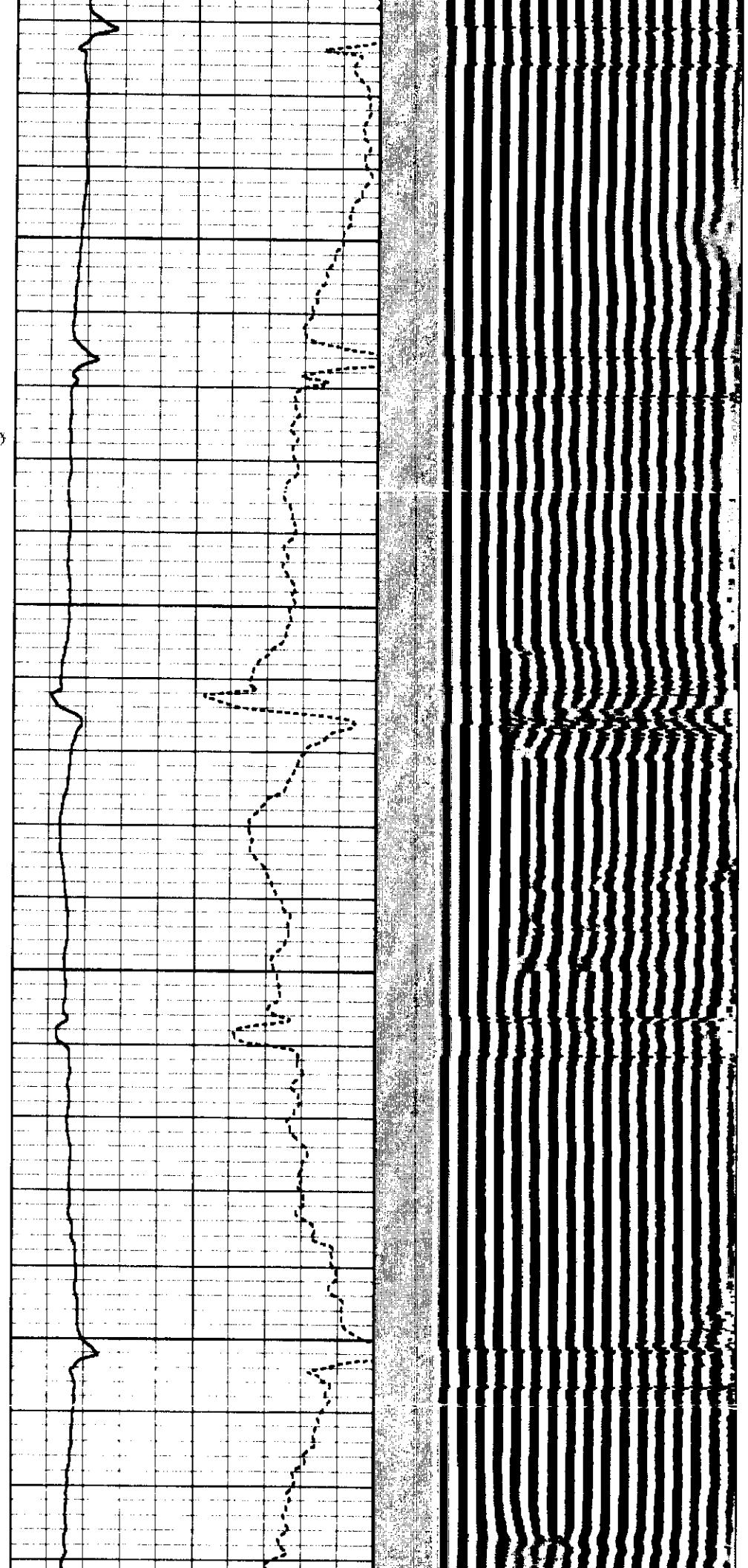
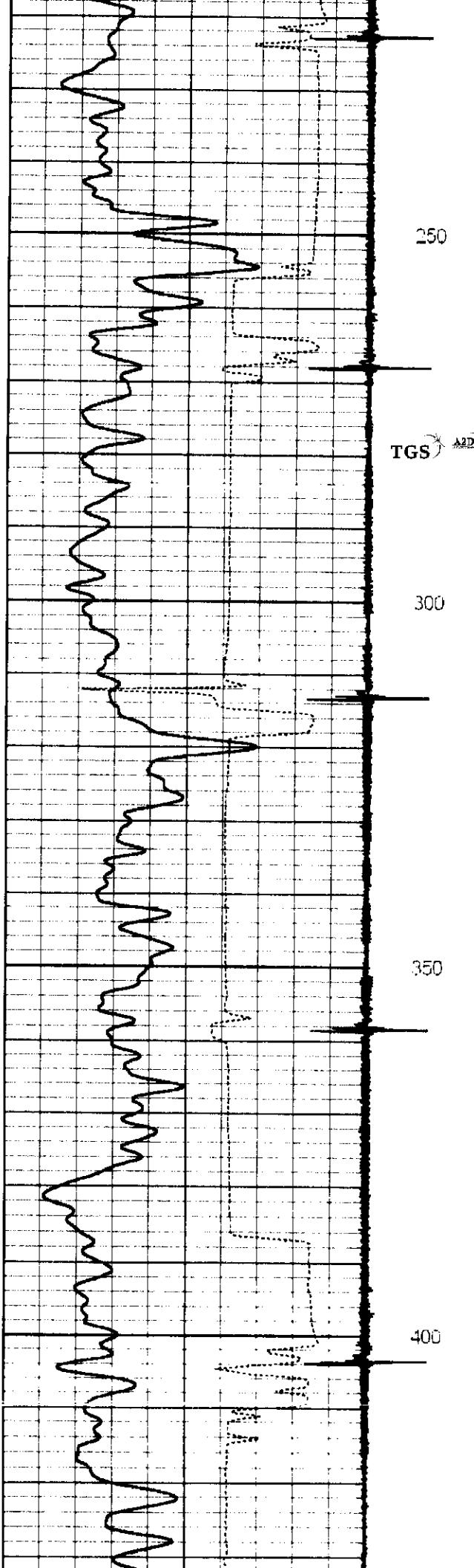
CORRELATED TO HALLIBURTON SPECTRAL DENSITY
DUAL SPACED NEUTRON LOG DATED 6-17-10
SHORT JOINT 3839' TO 3859'

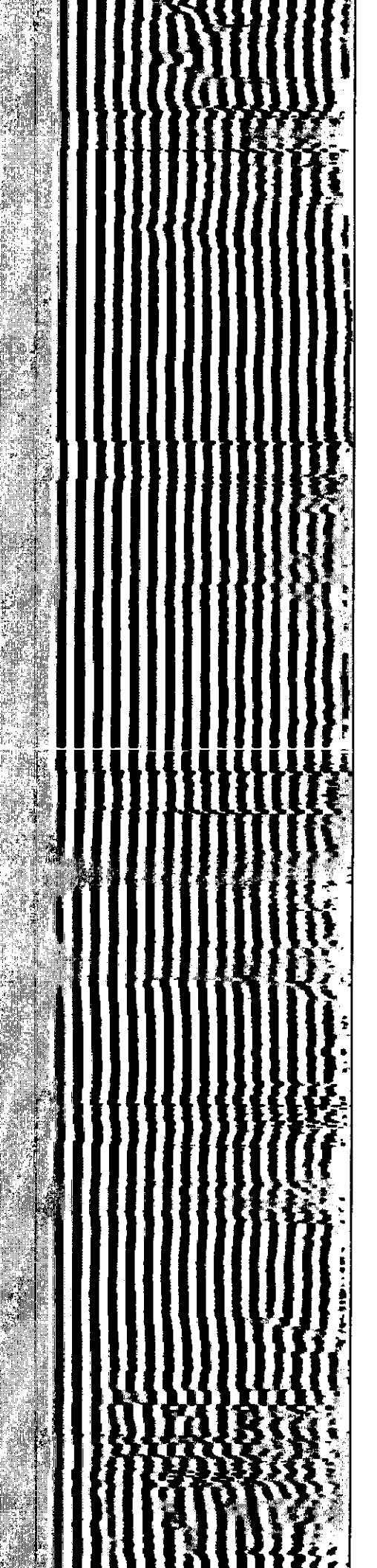
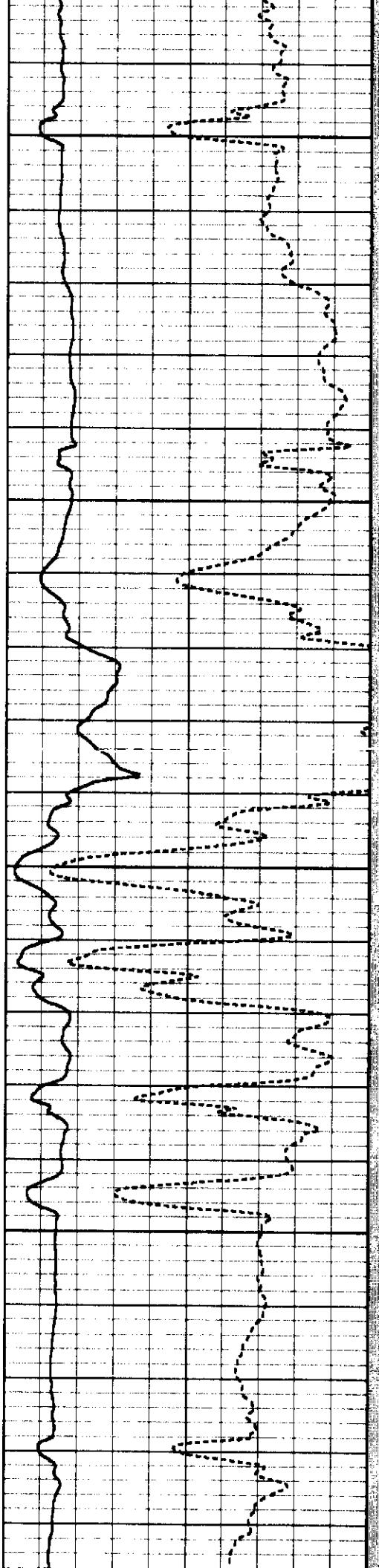
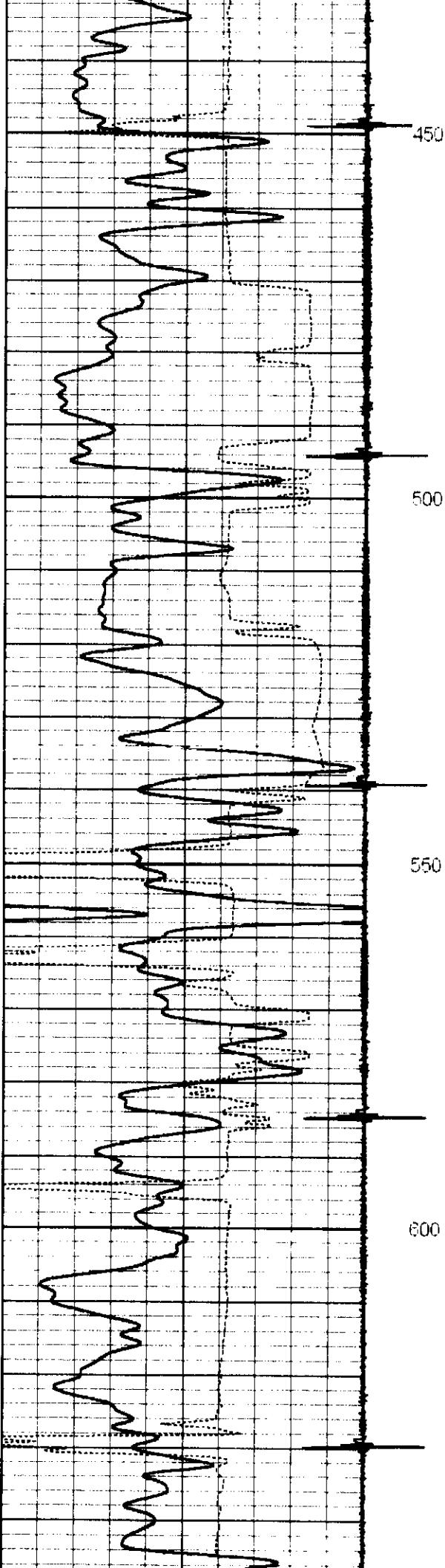
SOLUTIONS

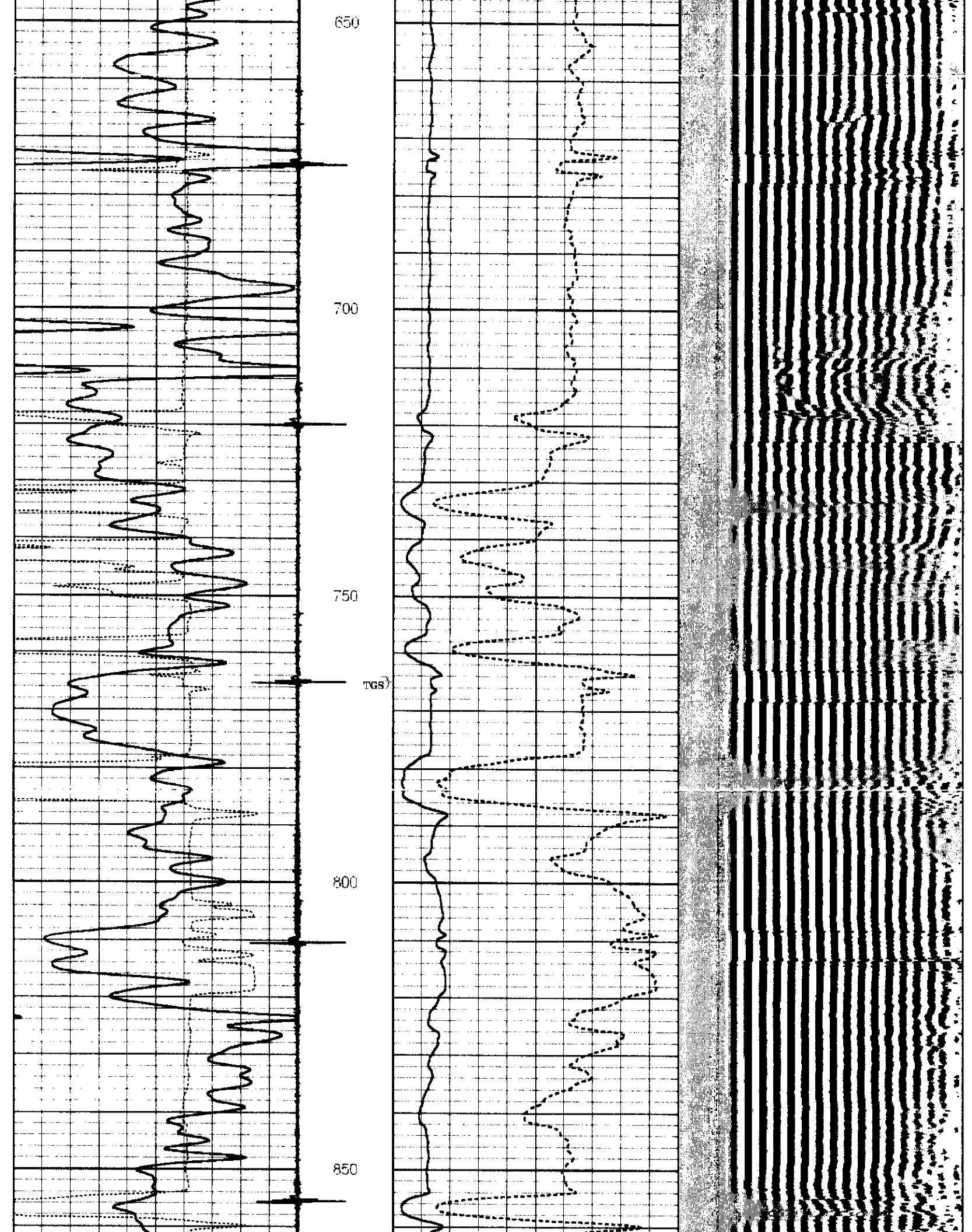
MAIN PASS (0 PSI)

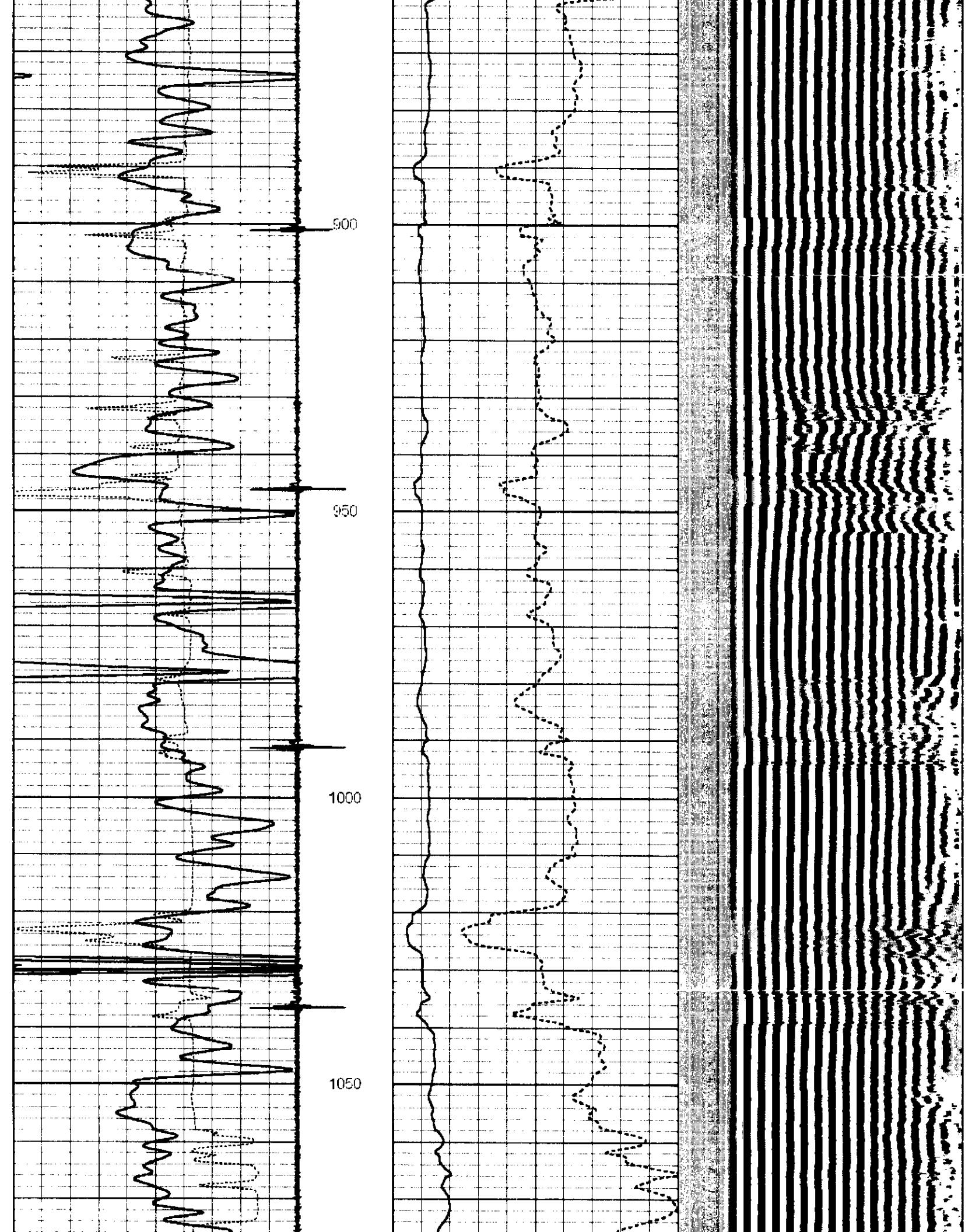
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Dataset Pathname: PETROGLYP/2011/CBL1/pass4.4
Presentation Format: v-2451cb
Dataset Creation: Tue Jan 01 02:38:13 2002 by Calc Std Casedhole 09061
Charted by: Depth in Feet scaled 1:240

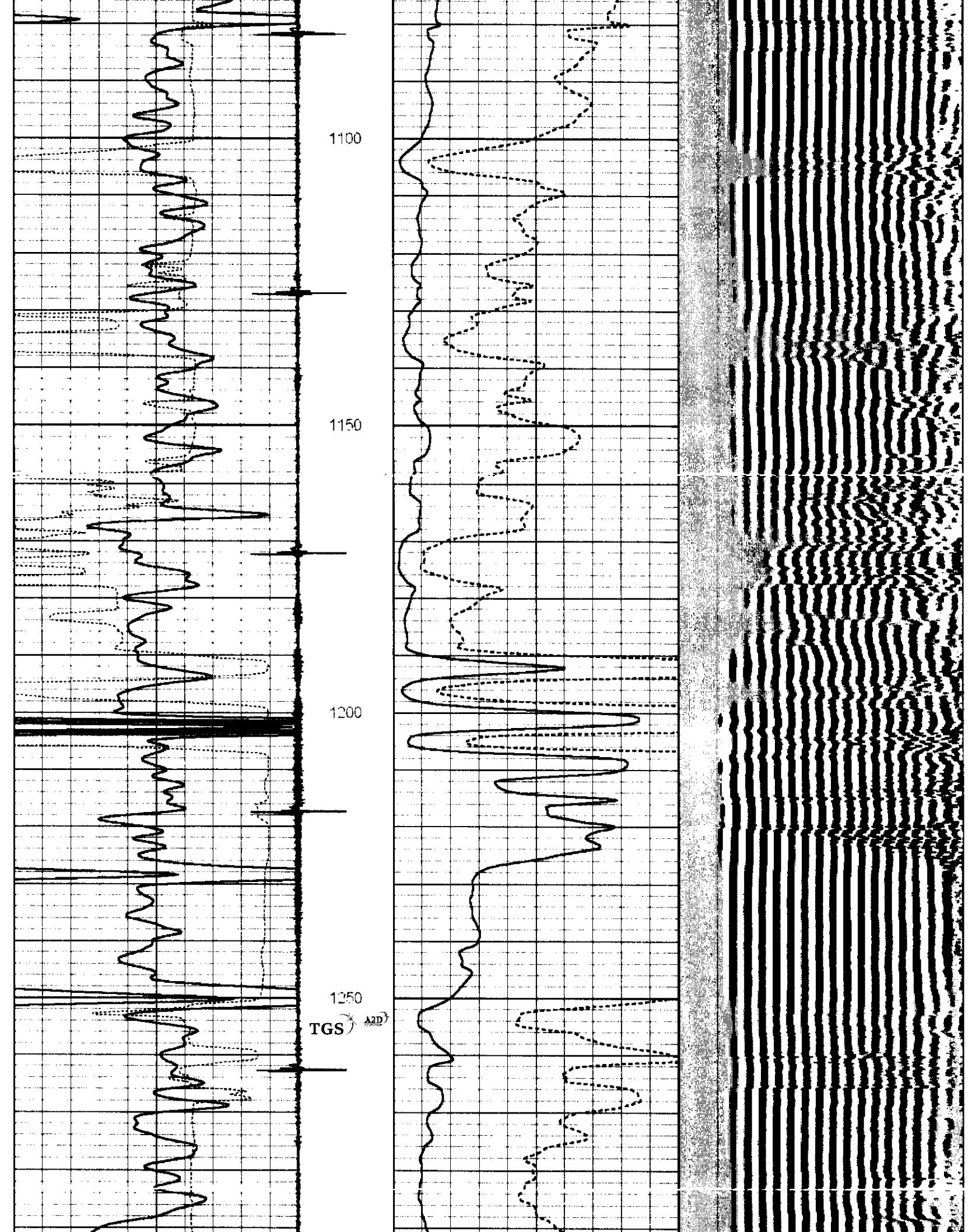












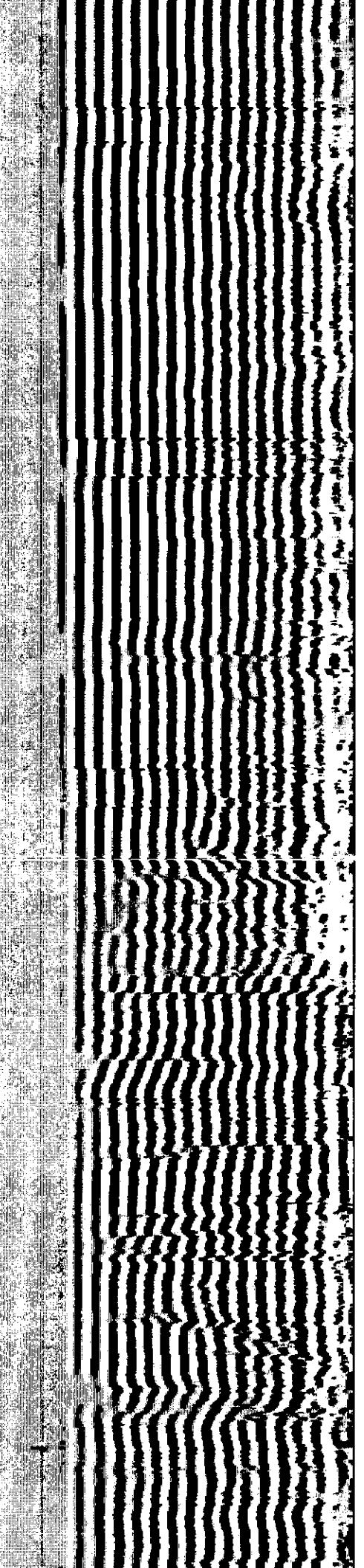
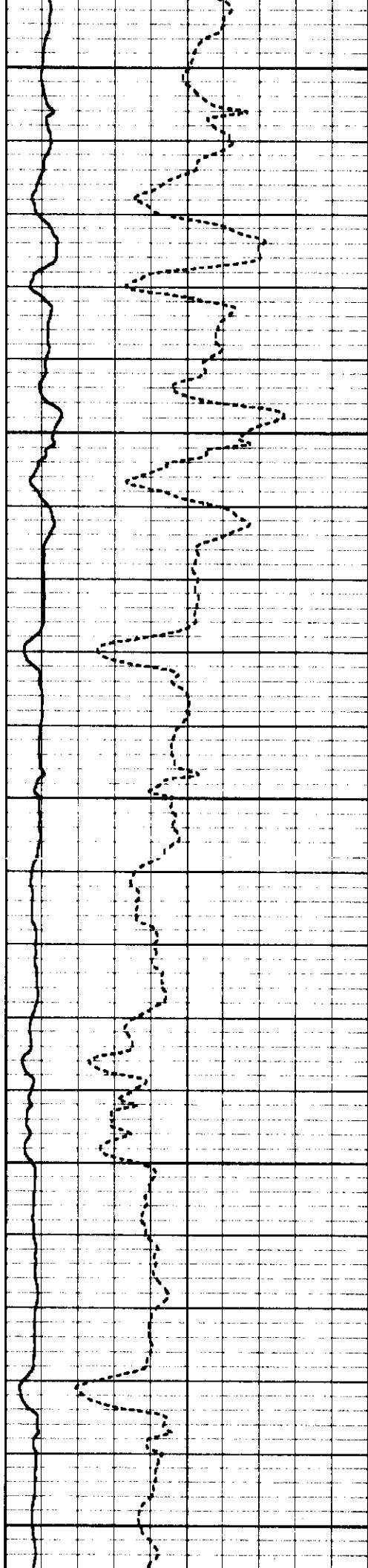
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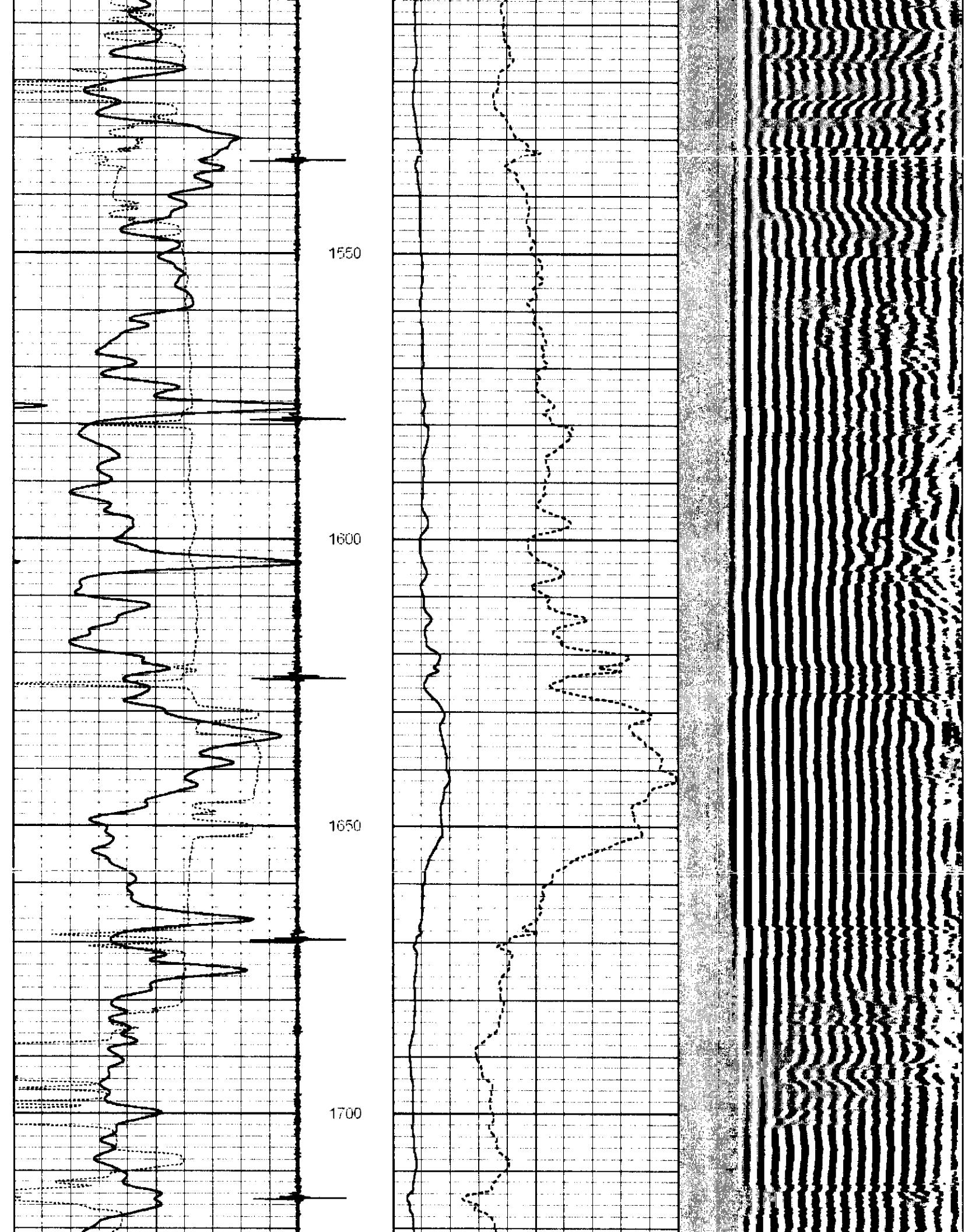
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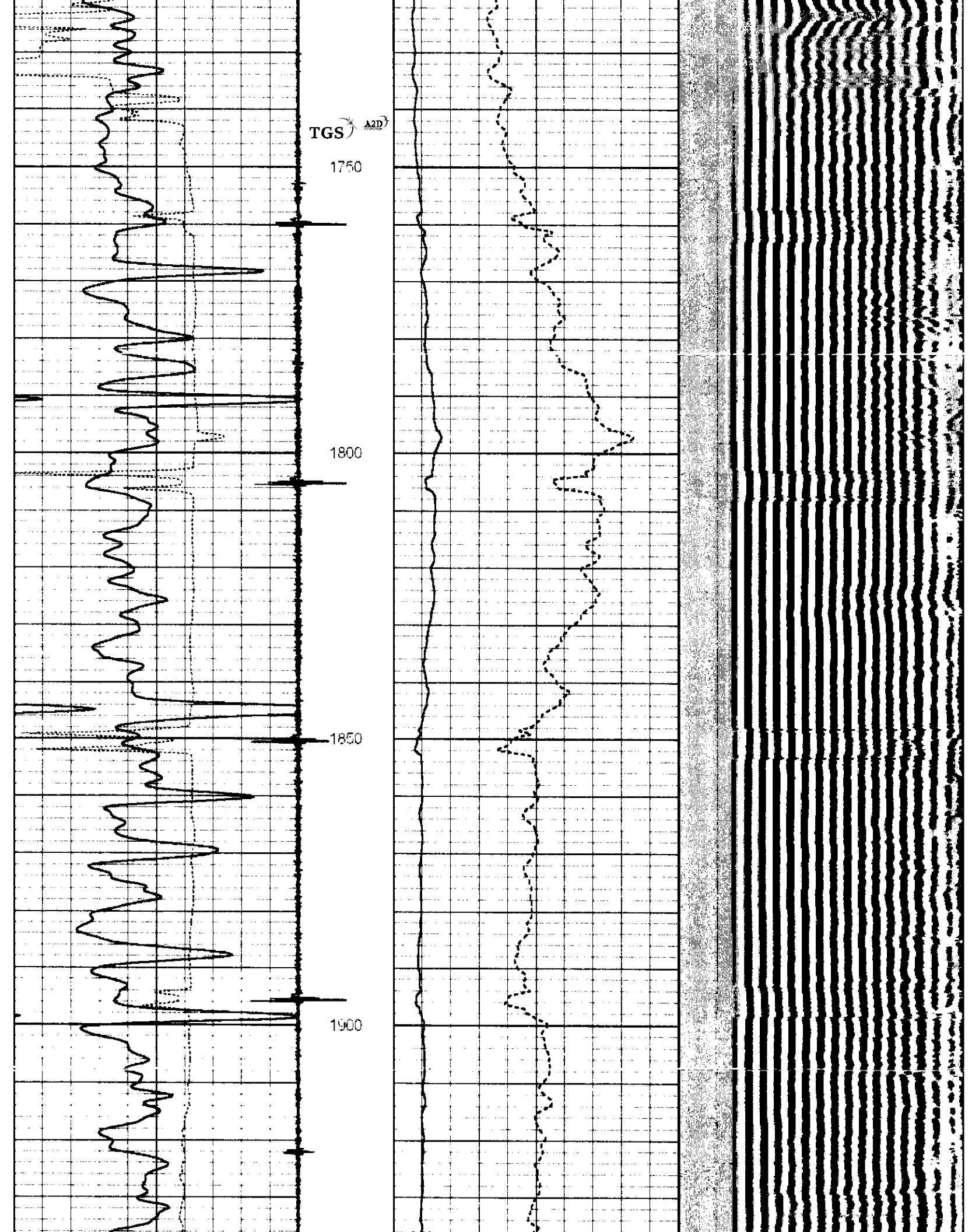
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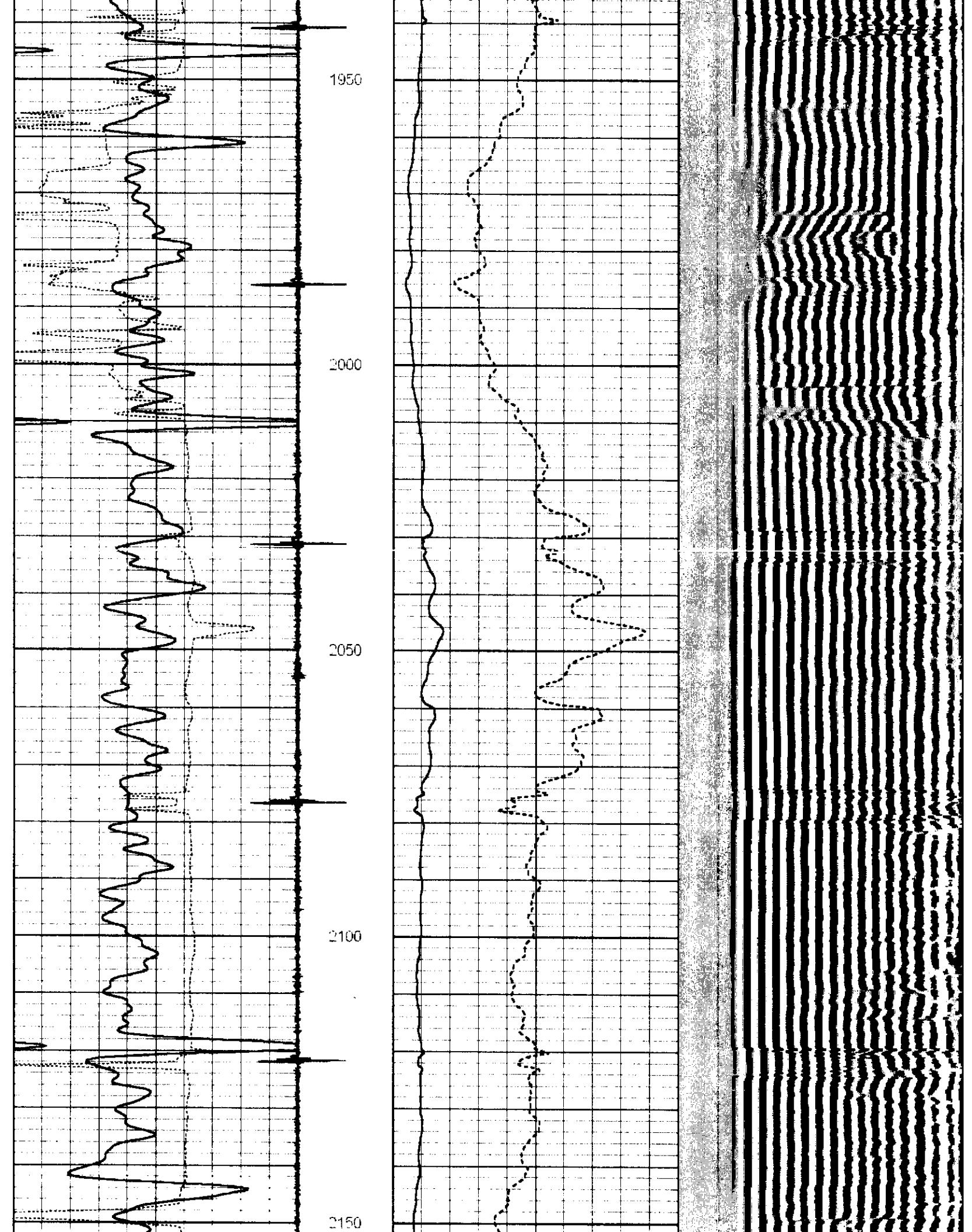
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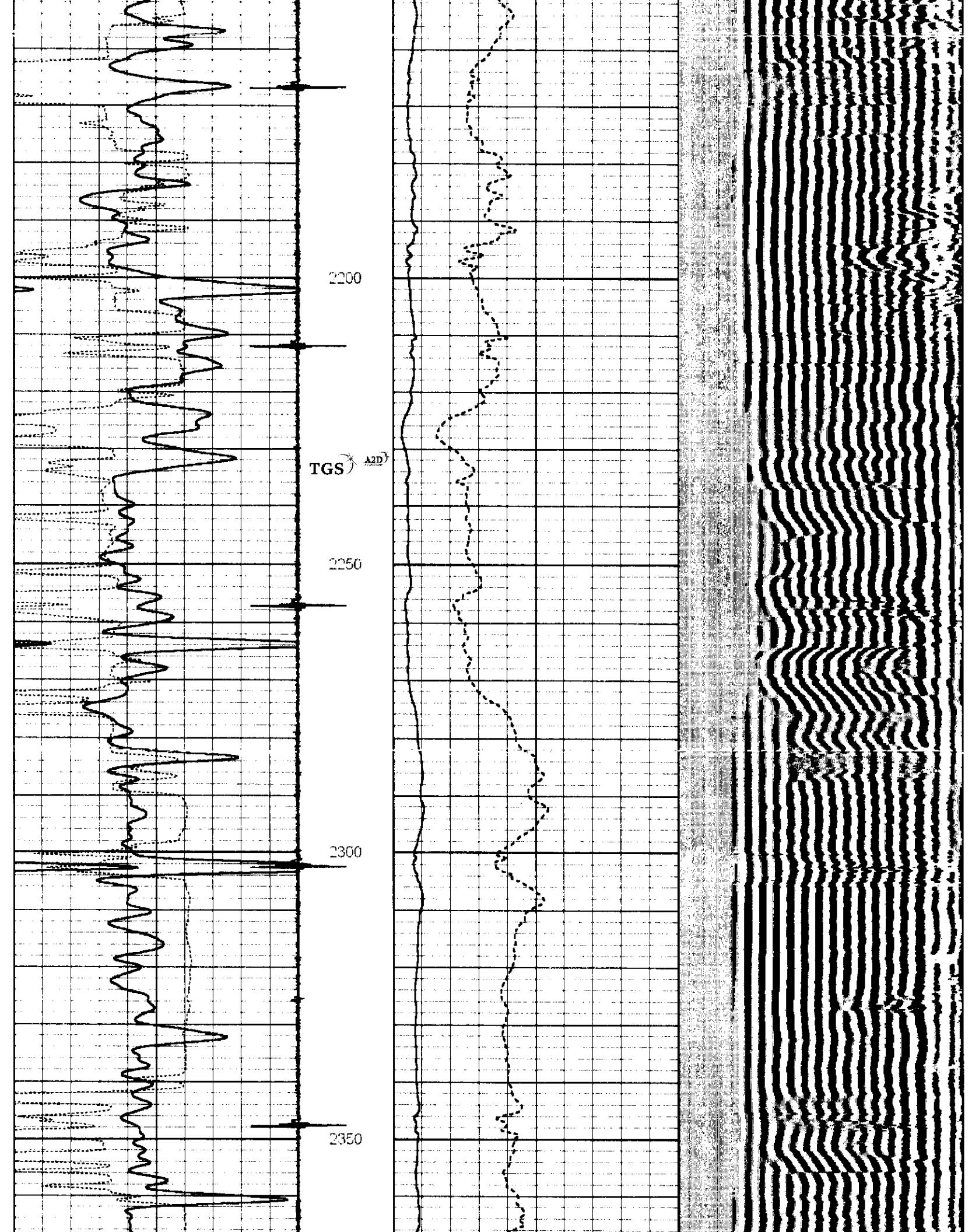
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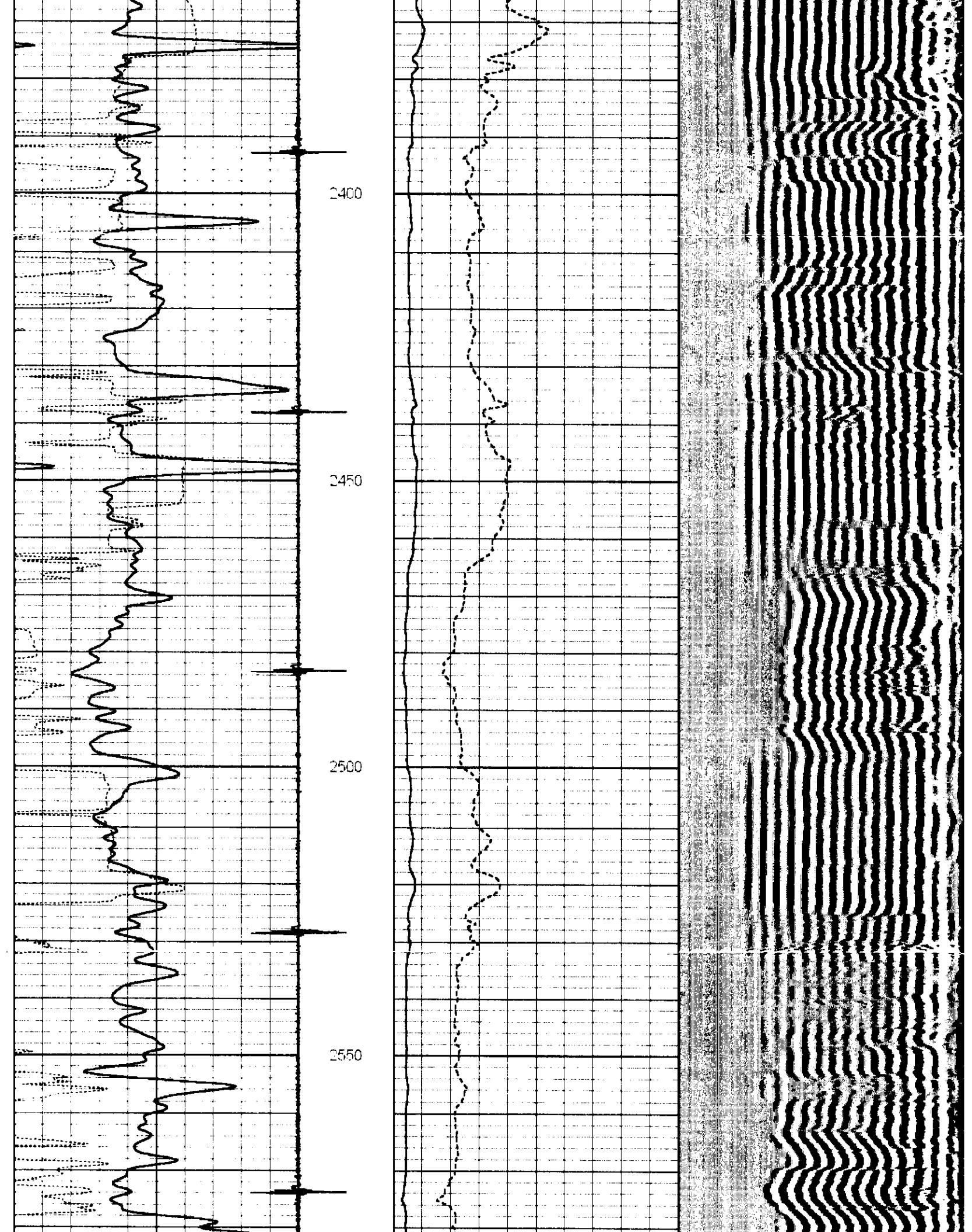


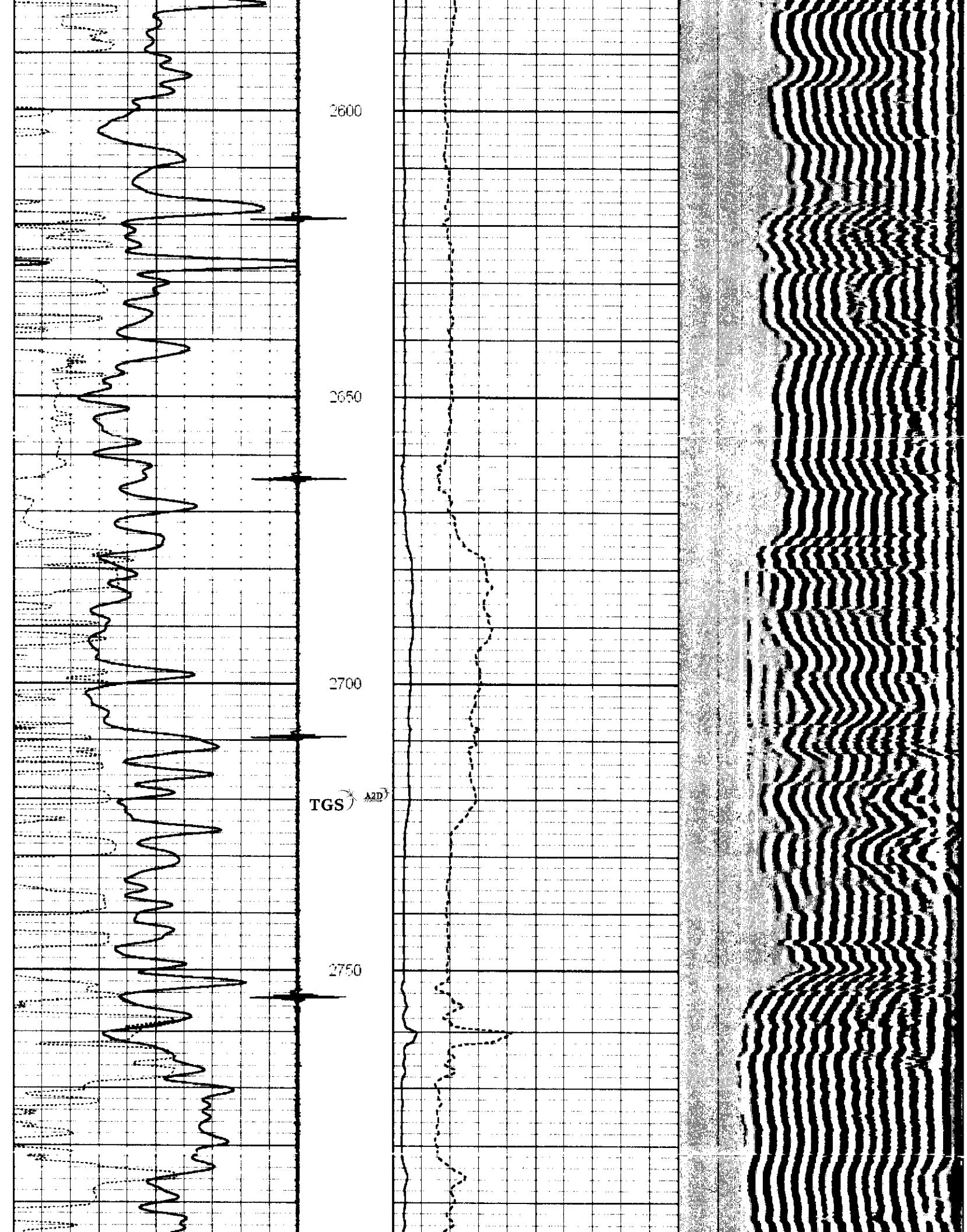


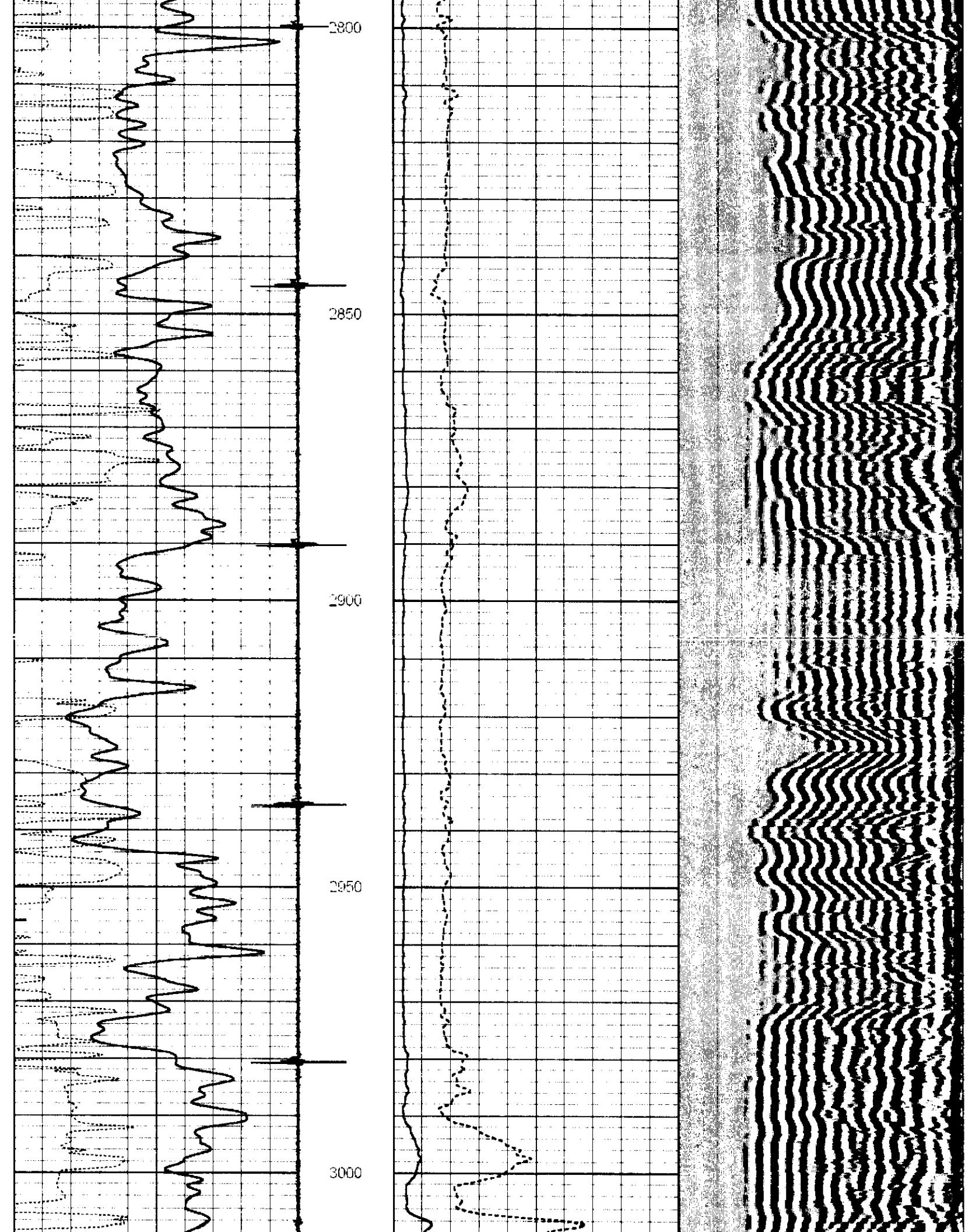


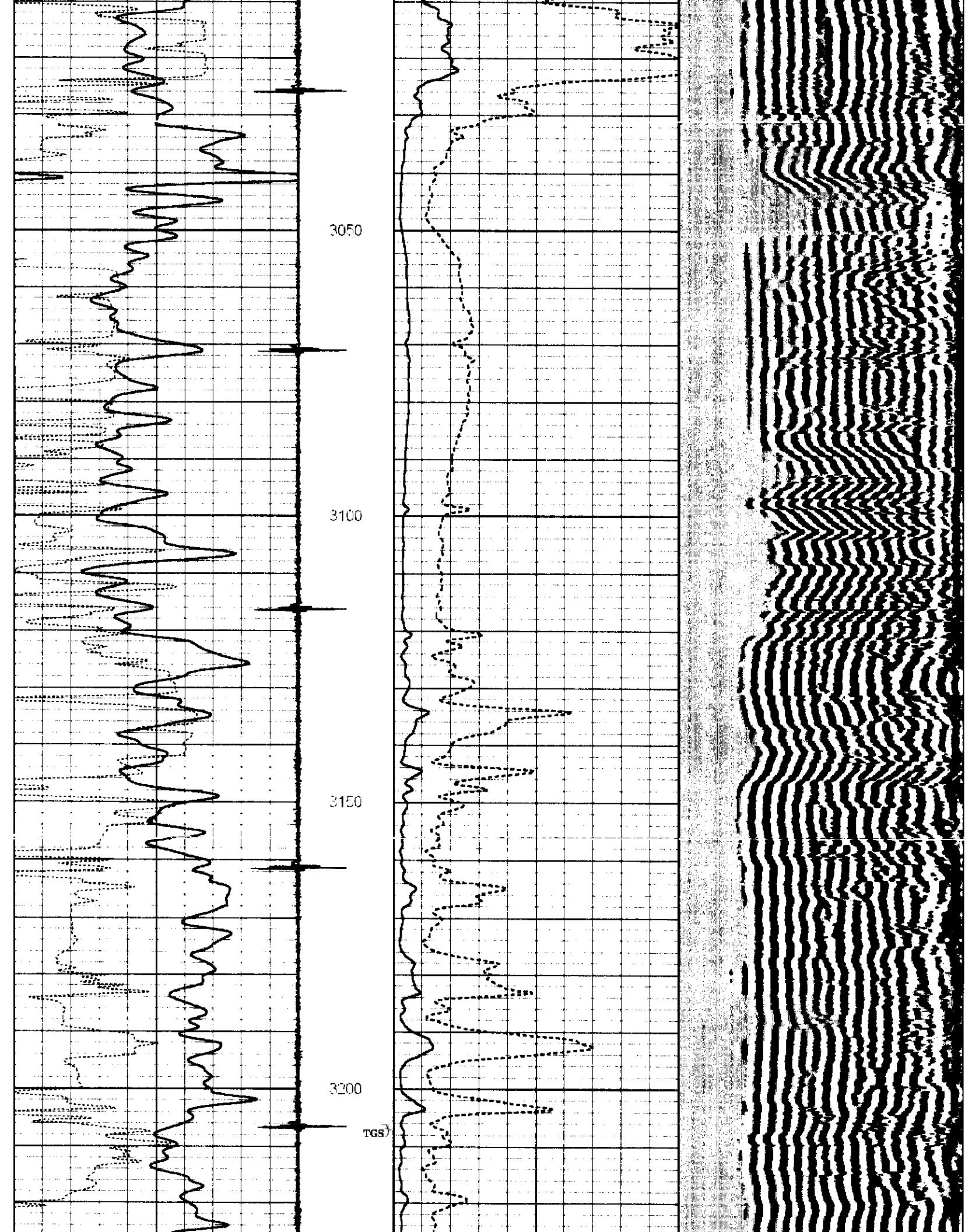


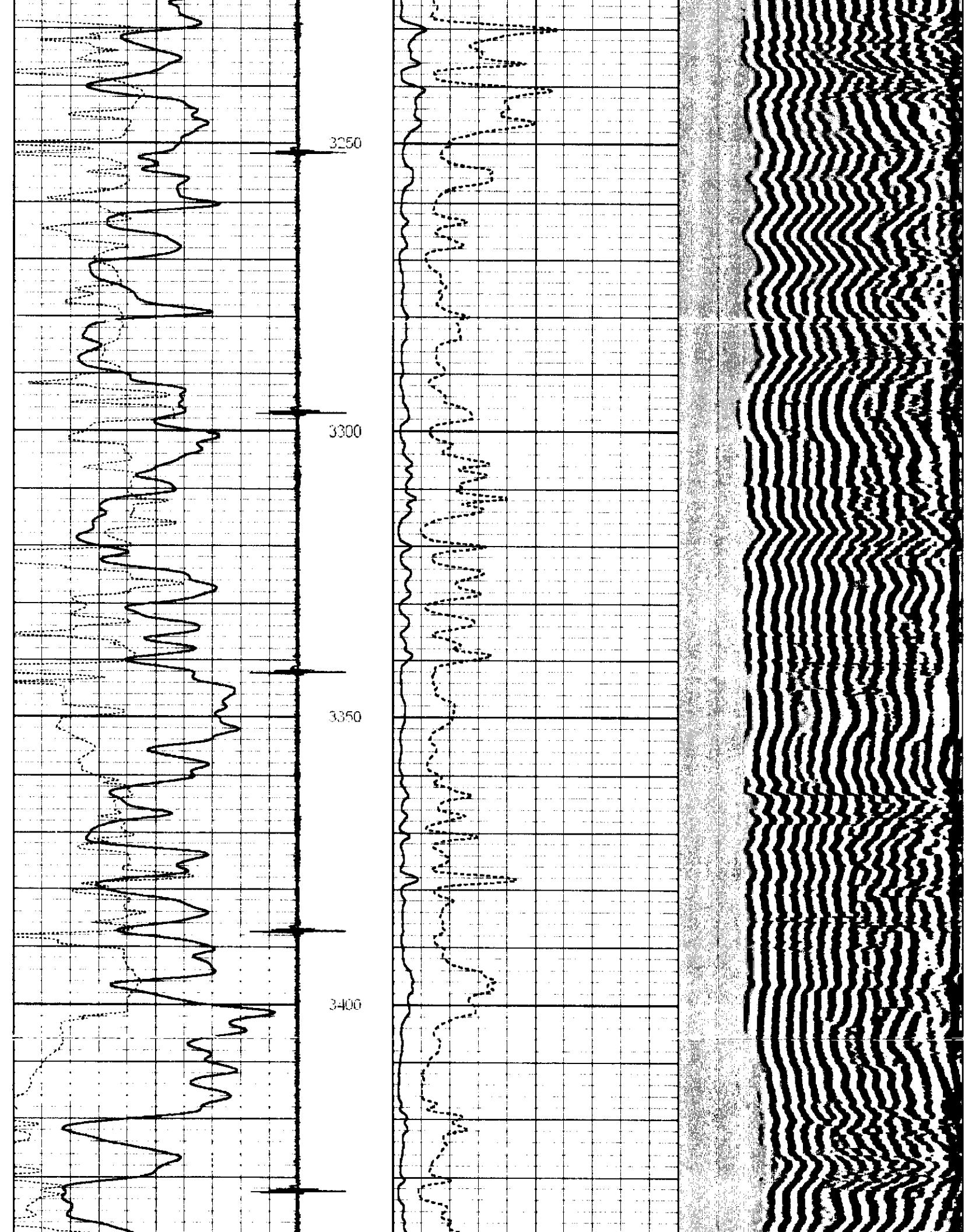


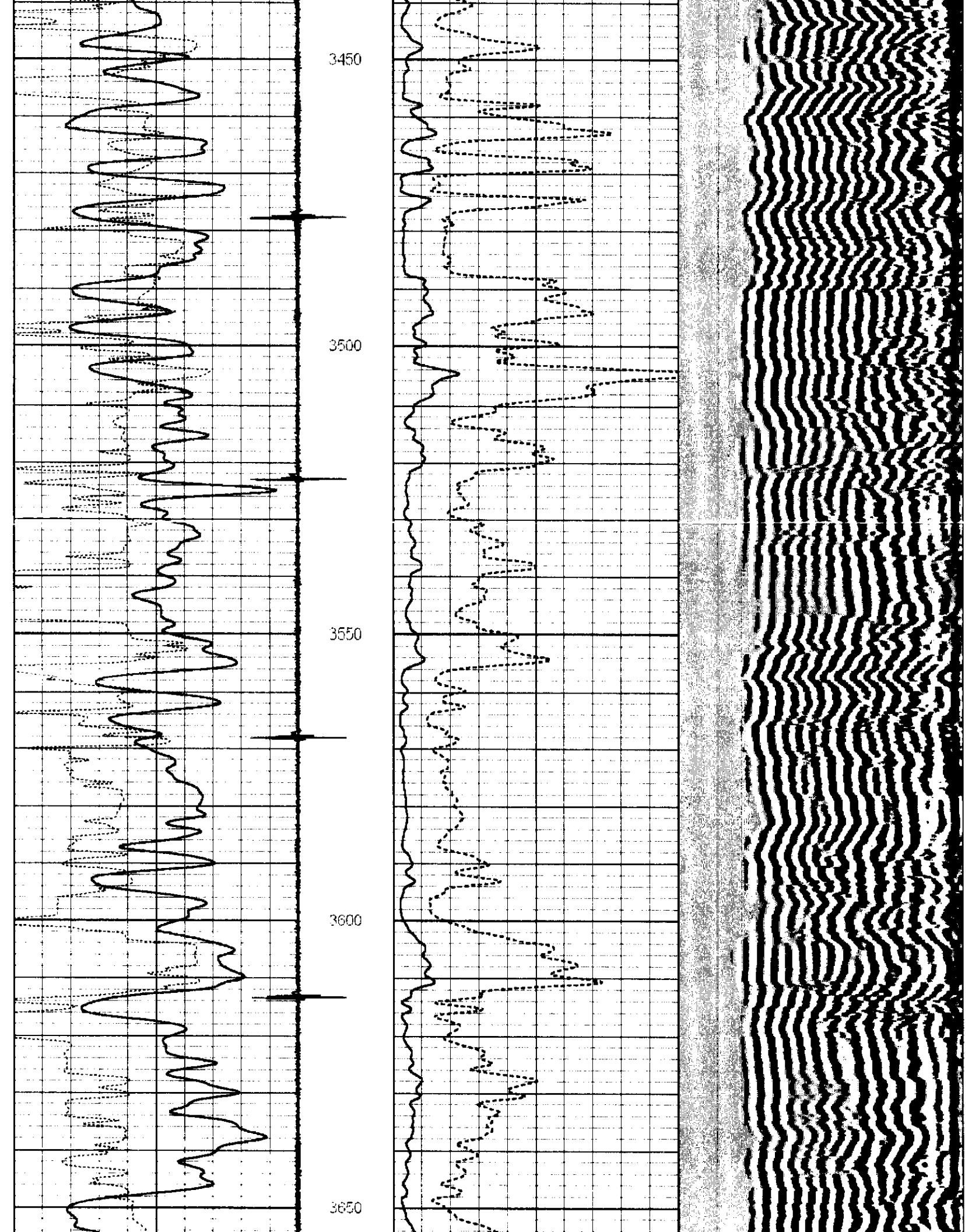


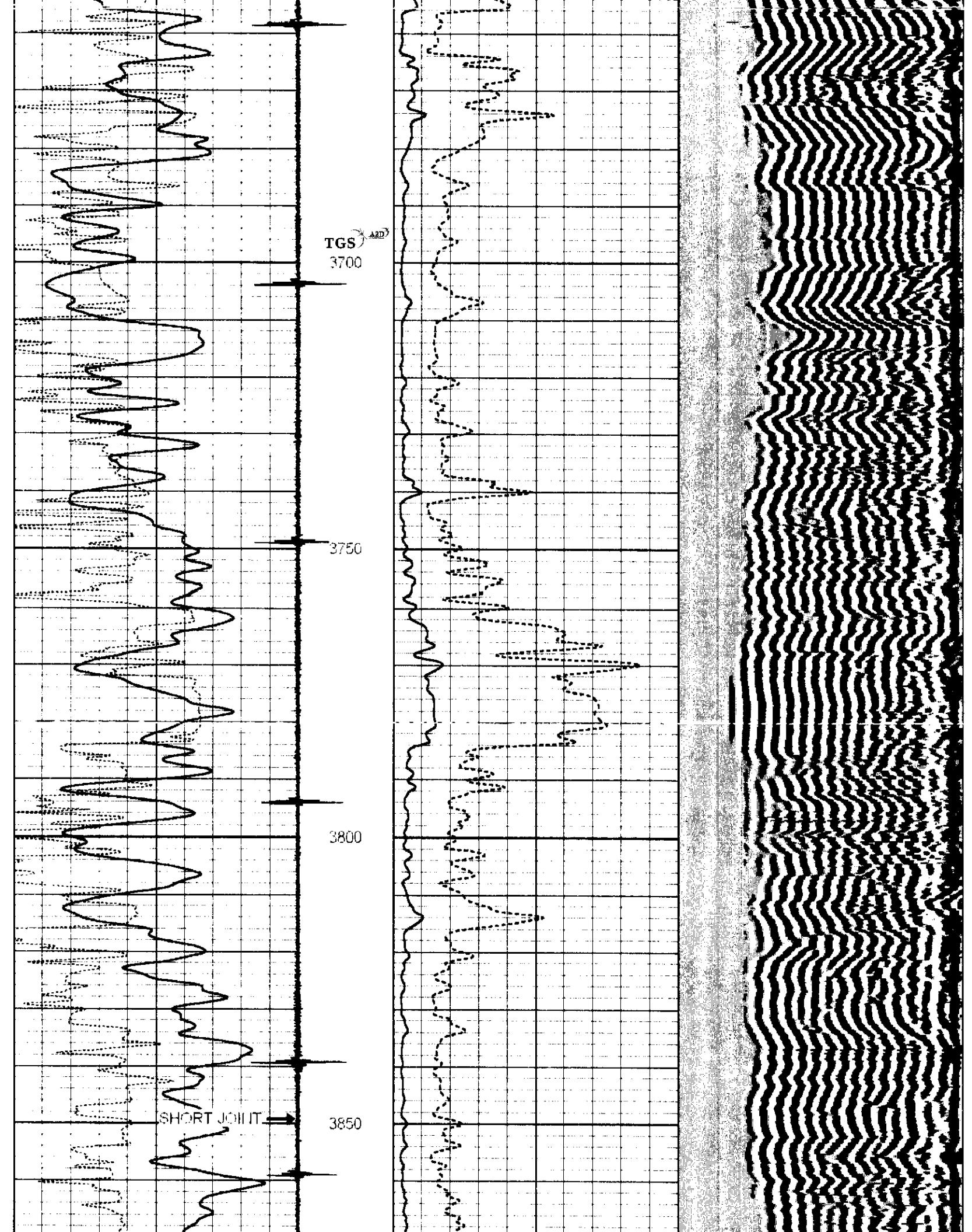


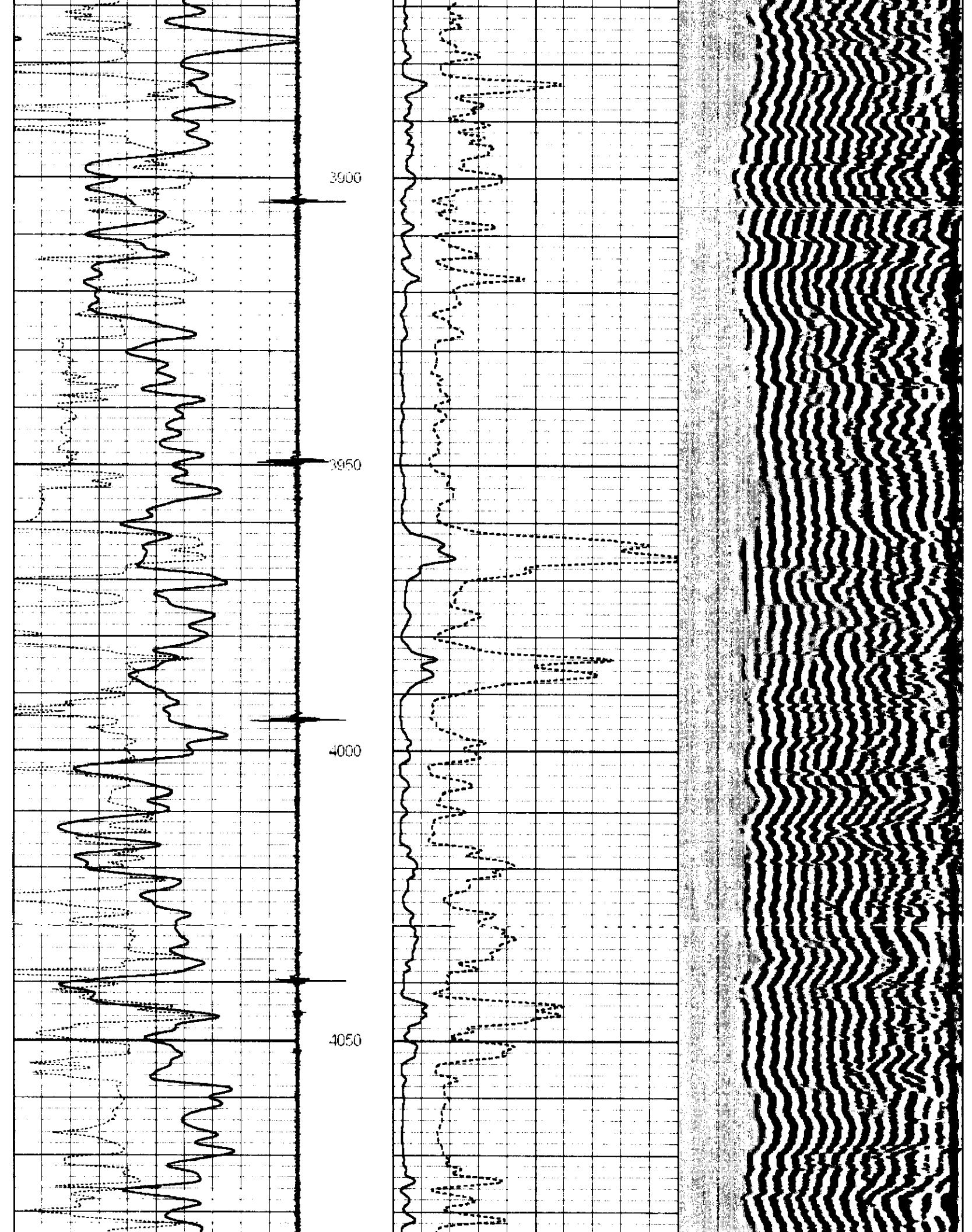


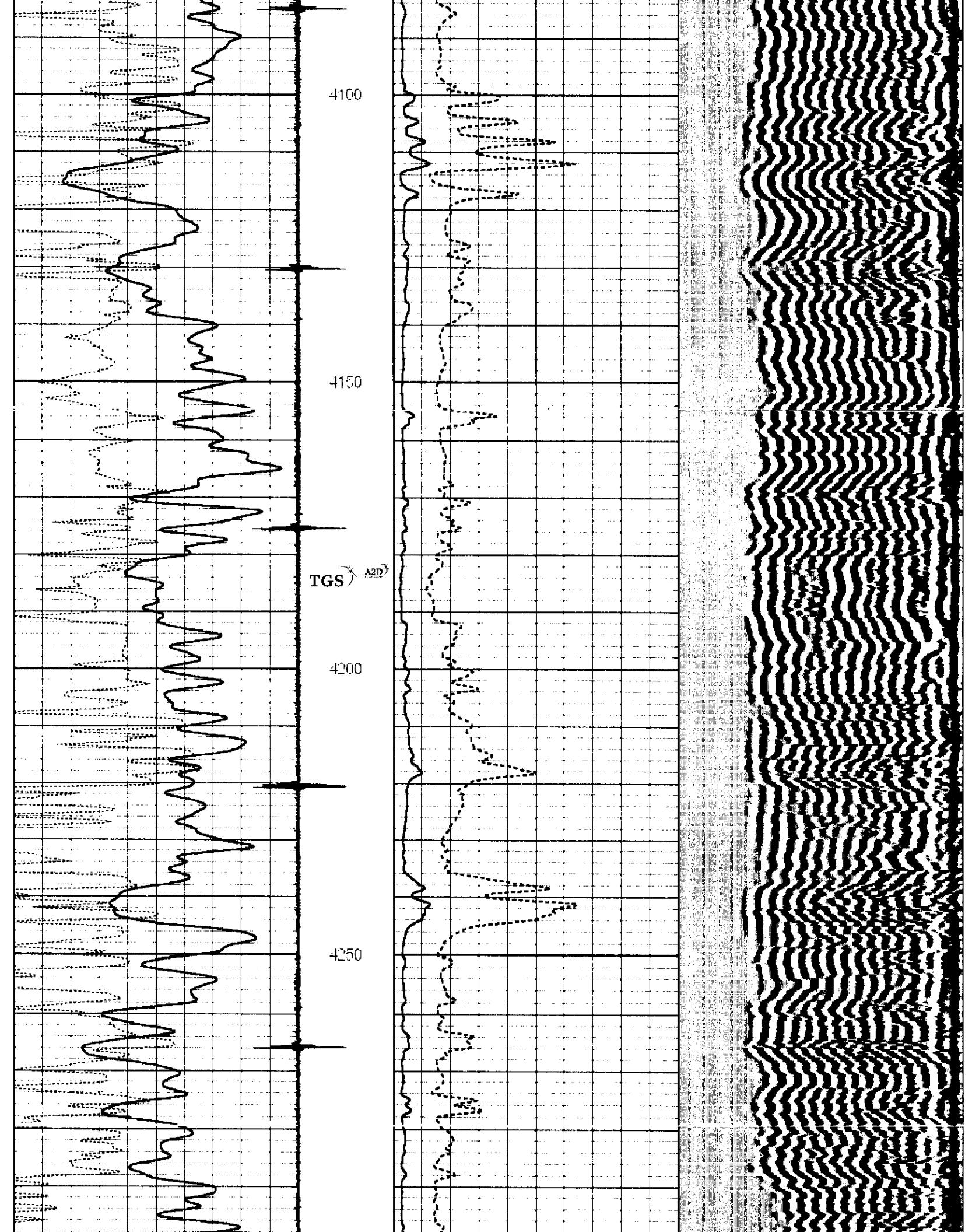


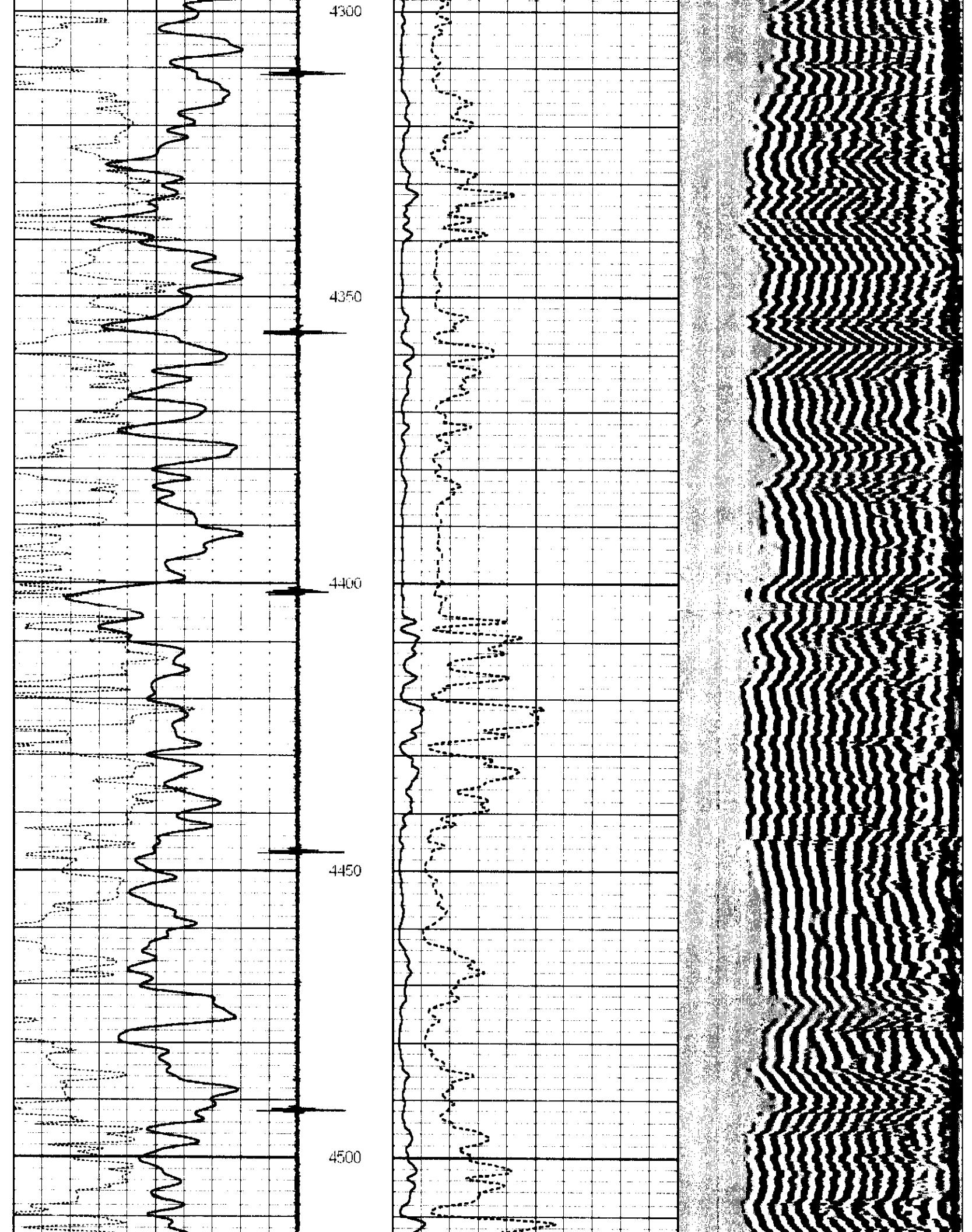


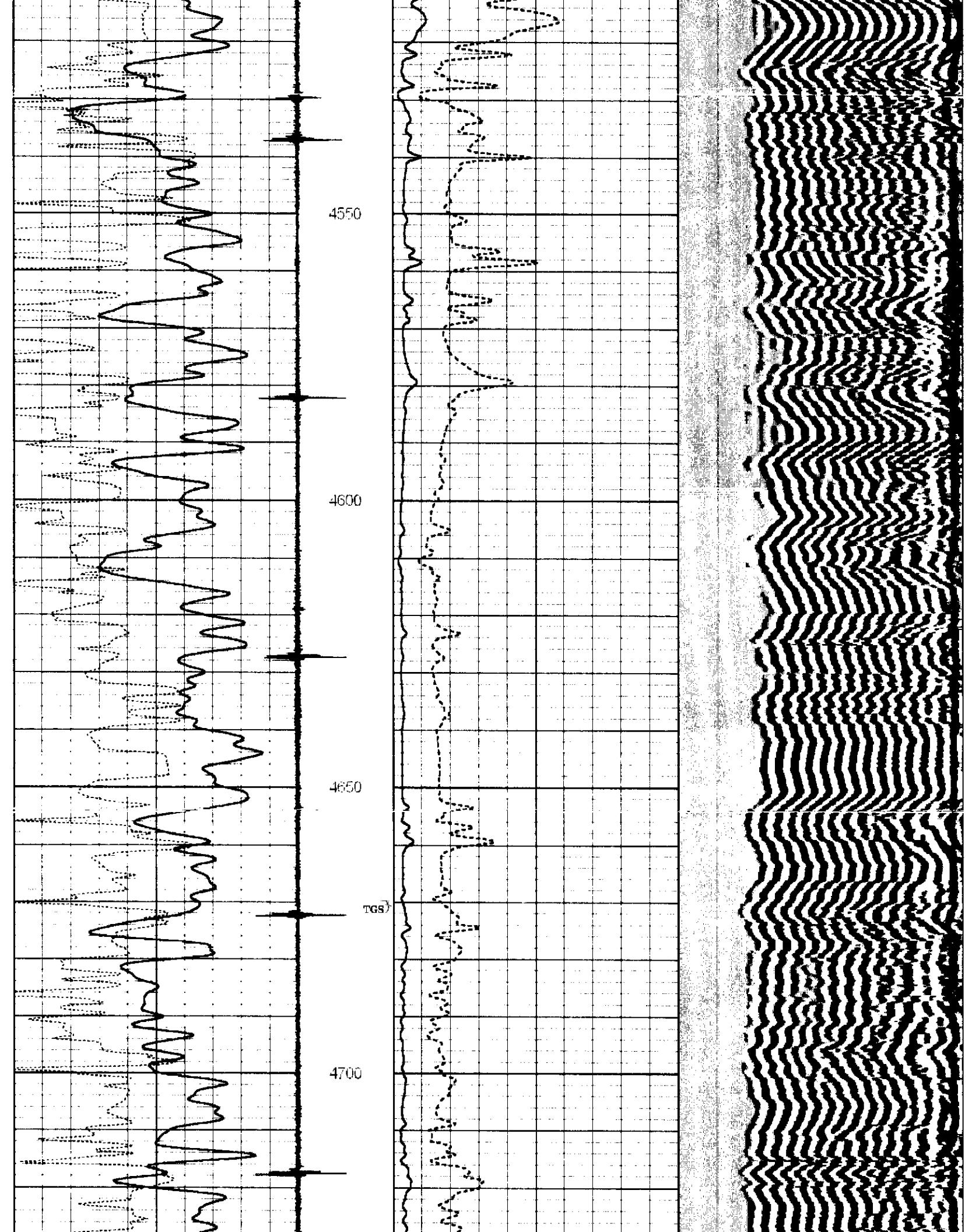


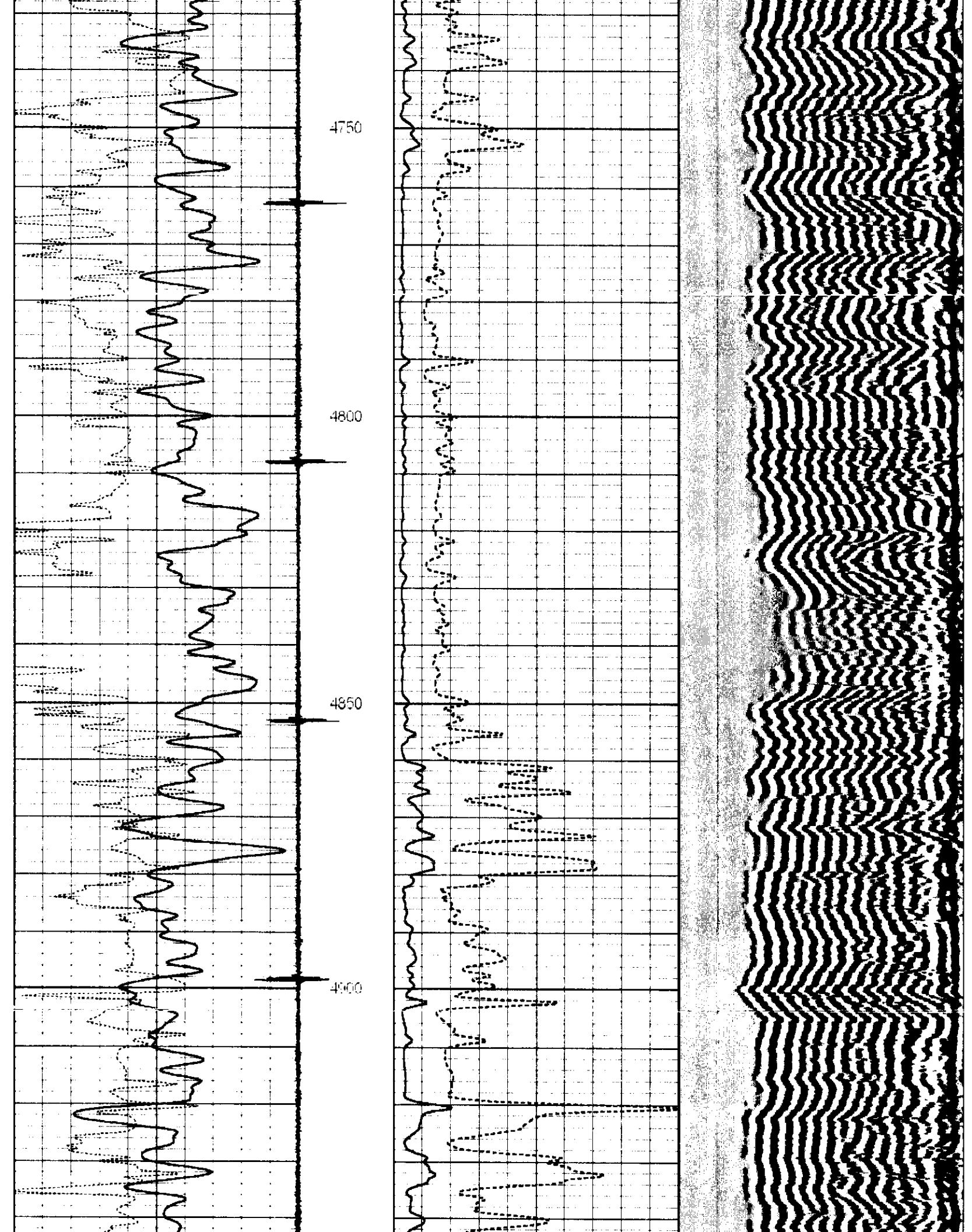


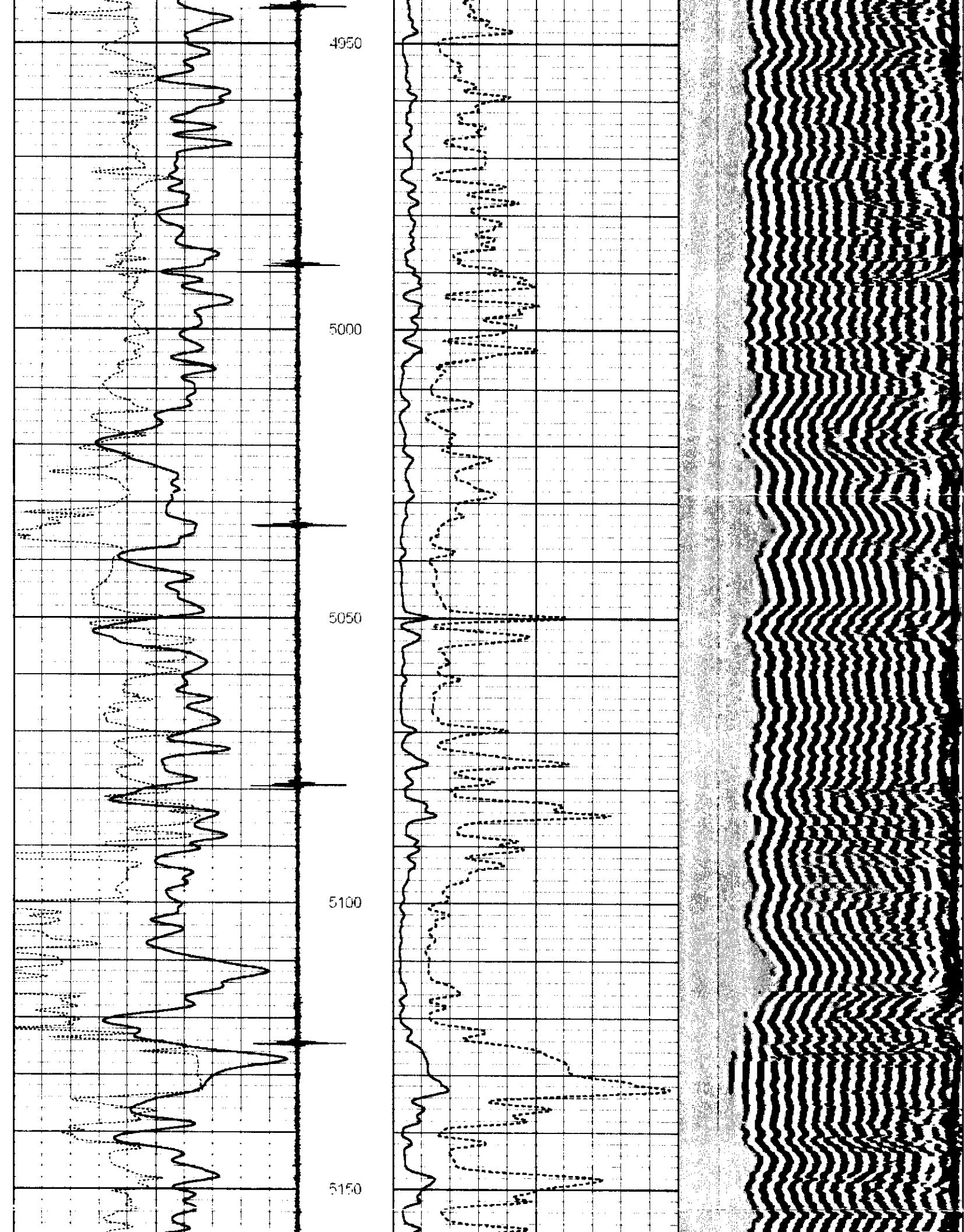




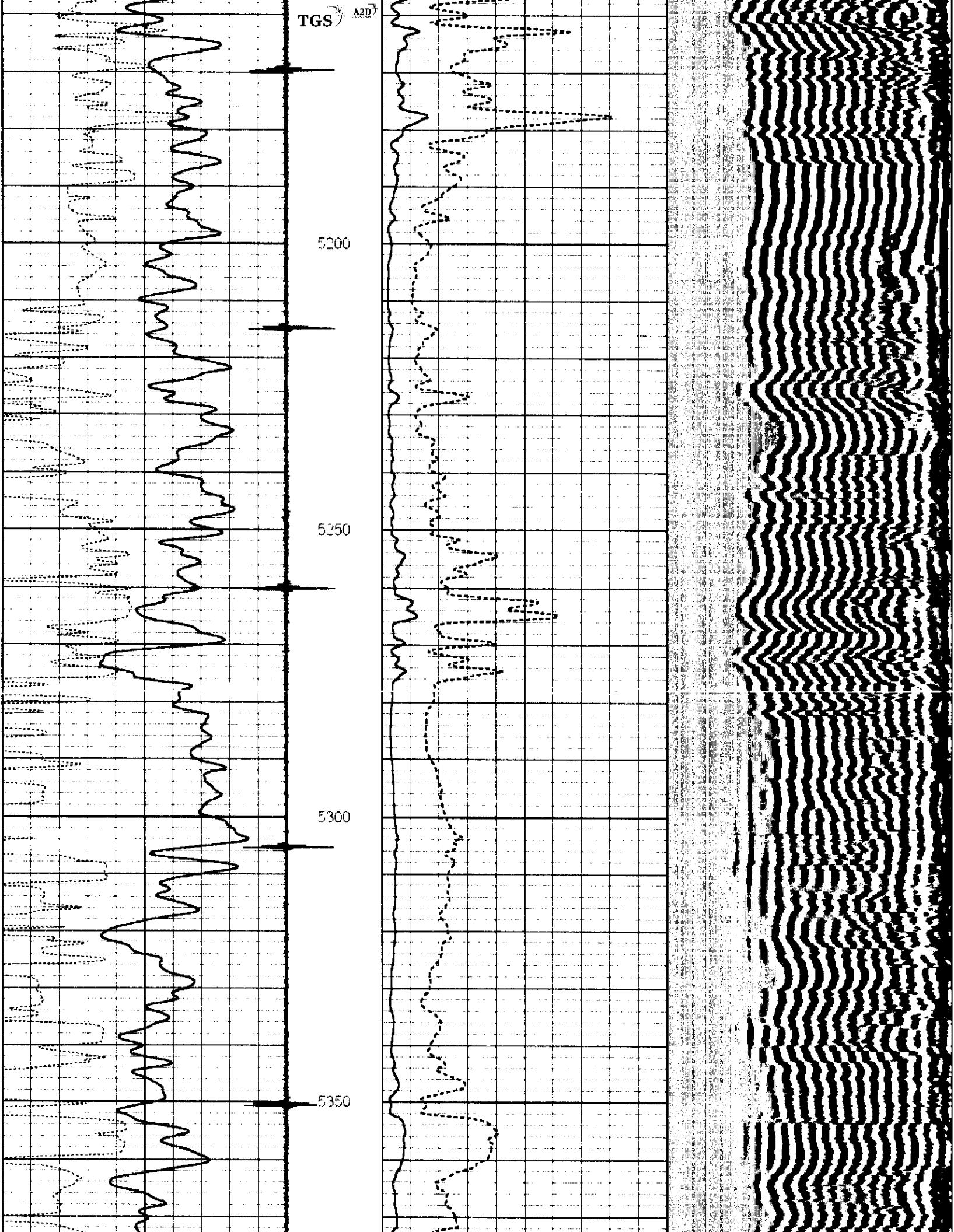


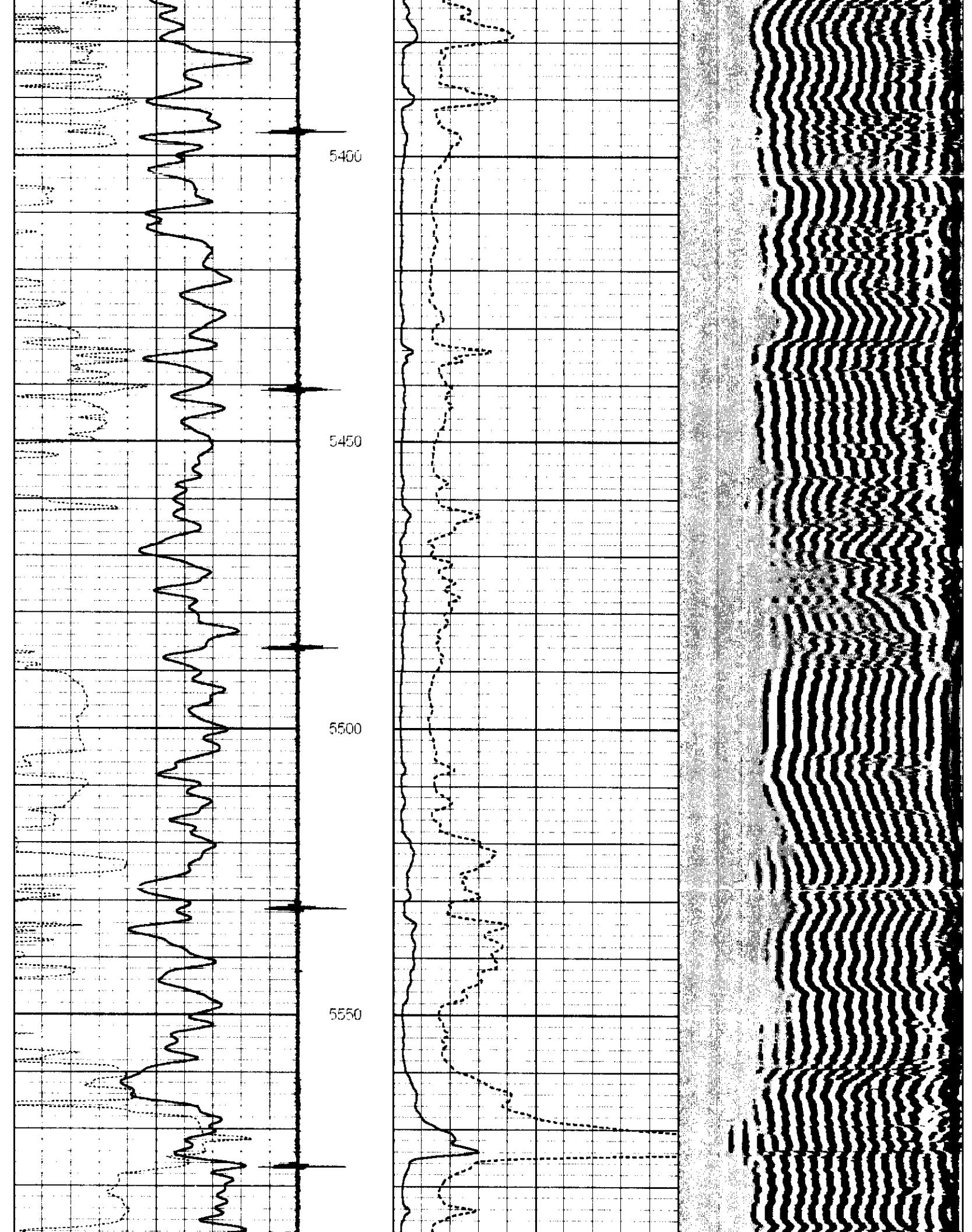


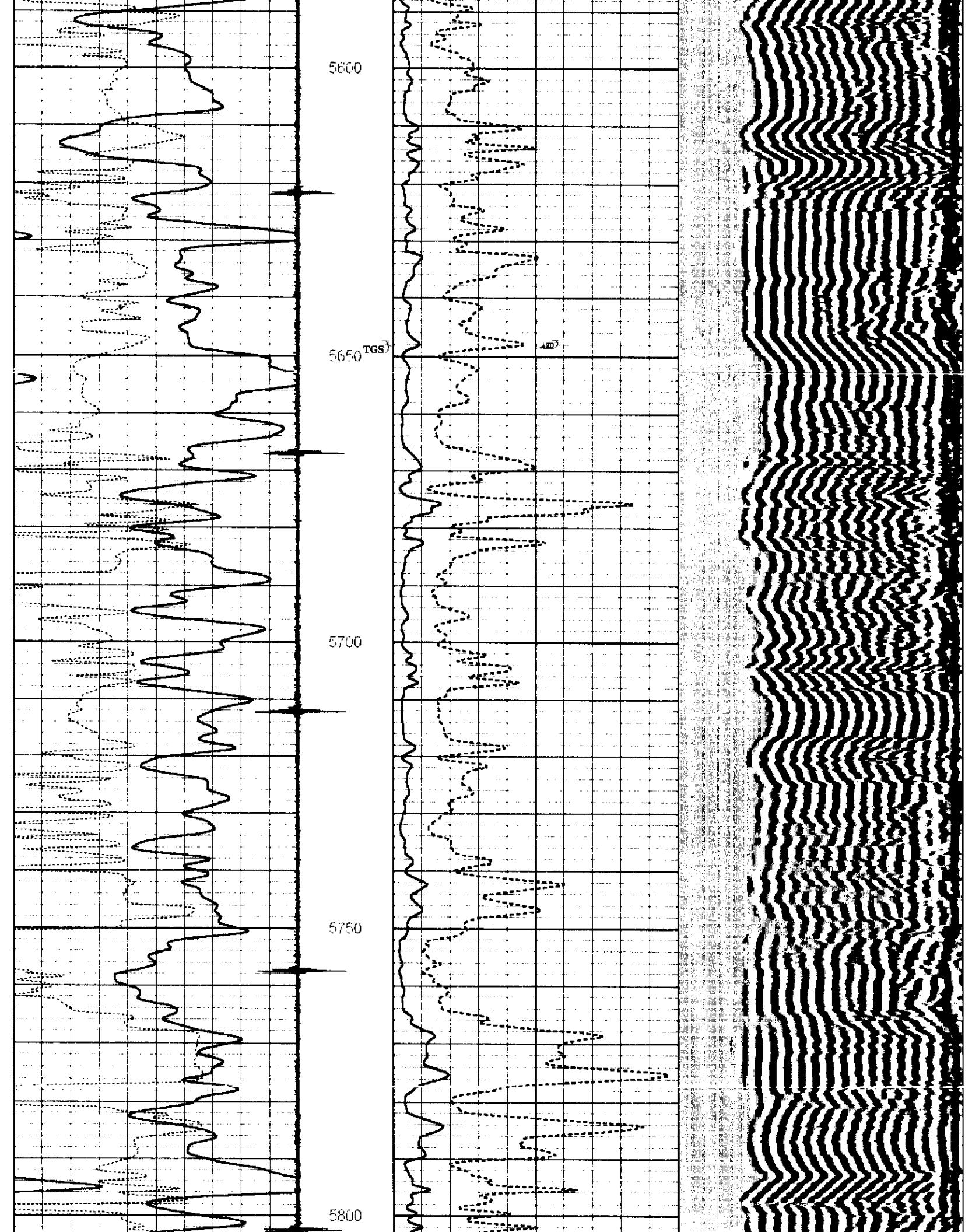


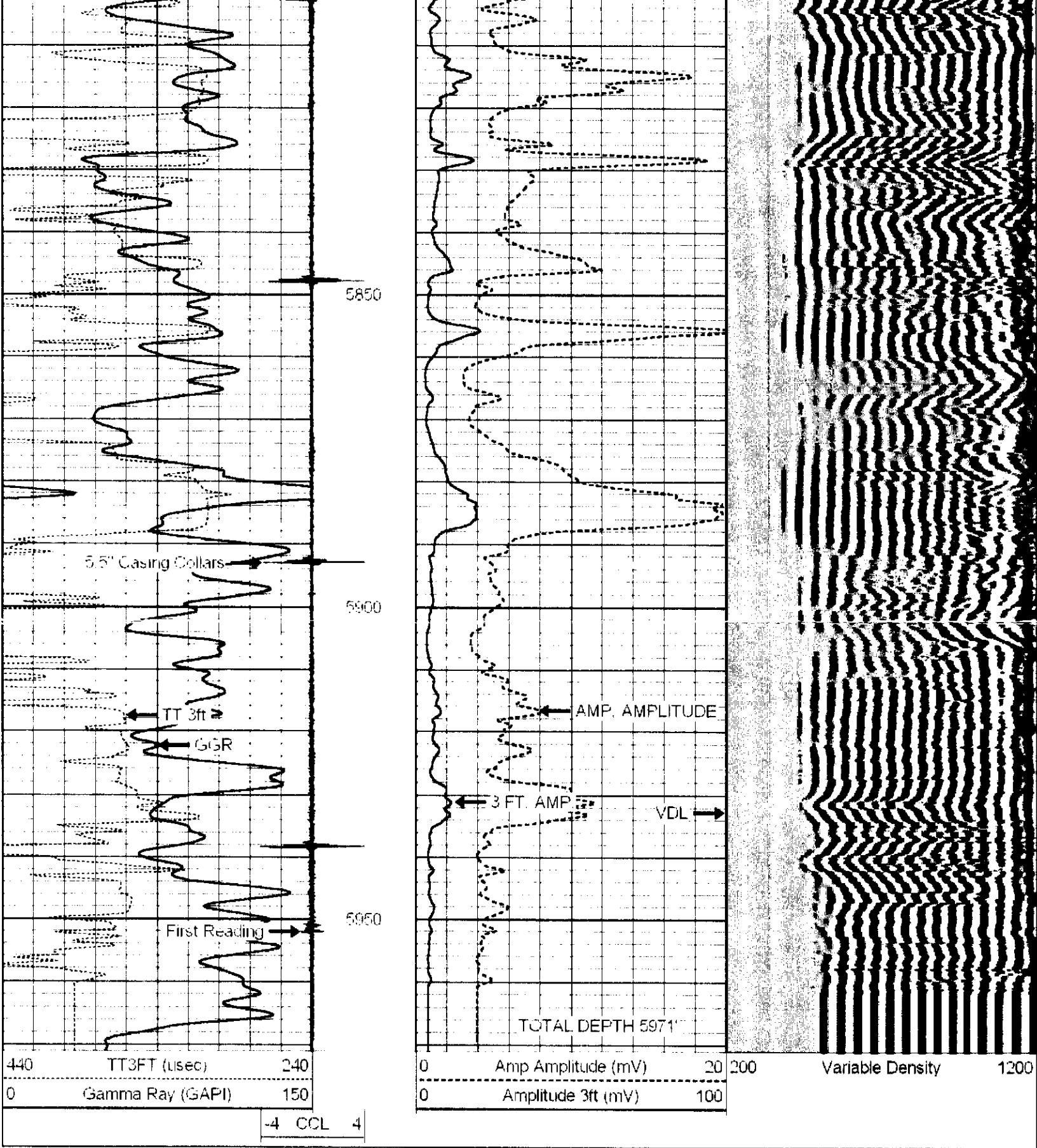


TGS A2D







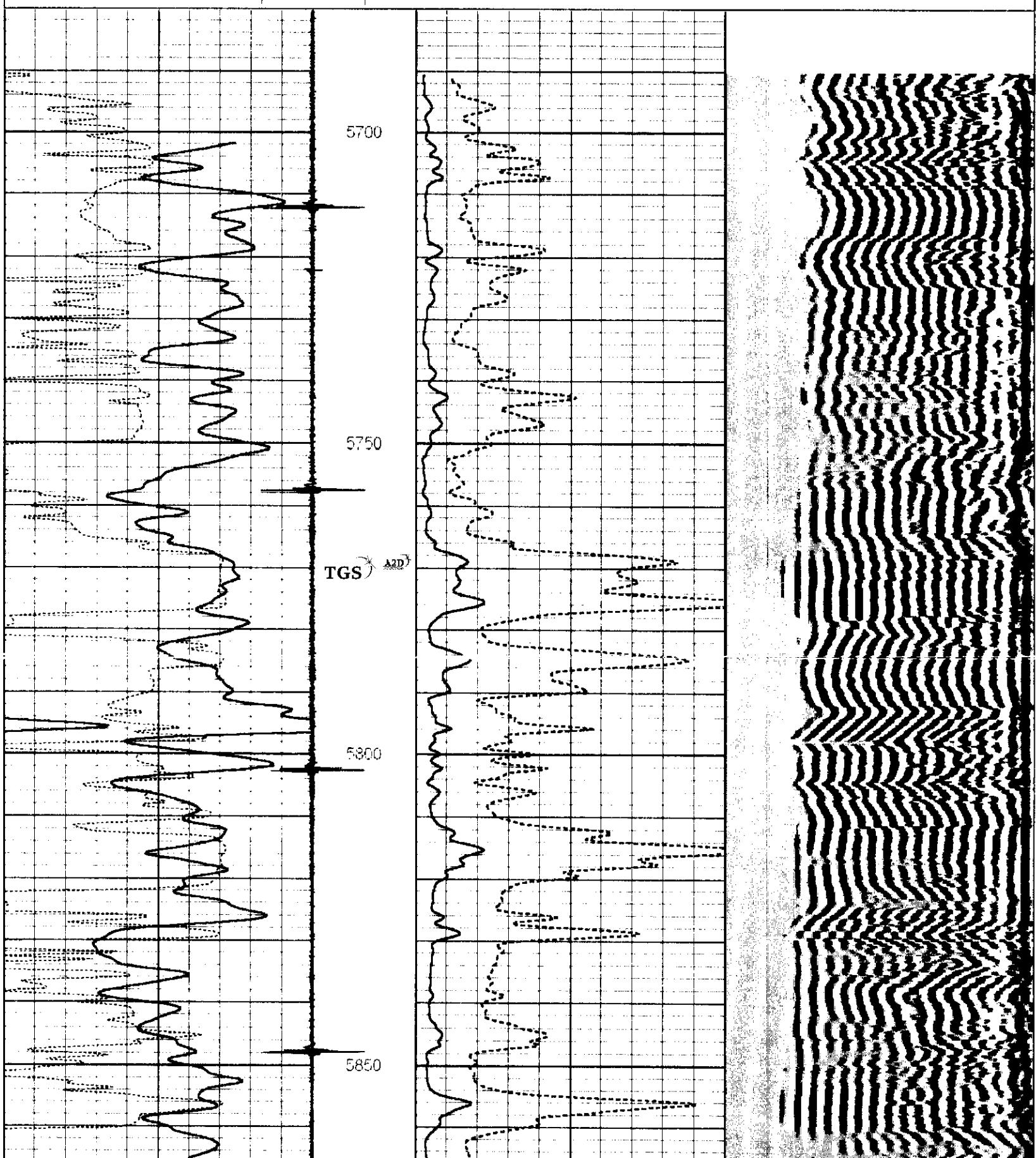


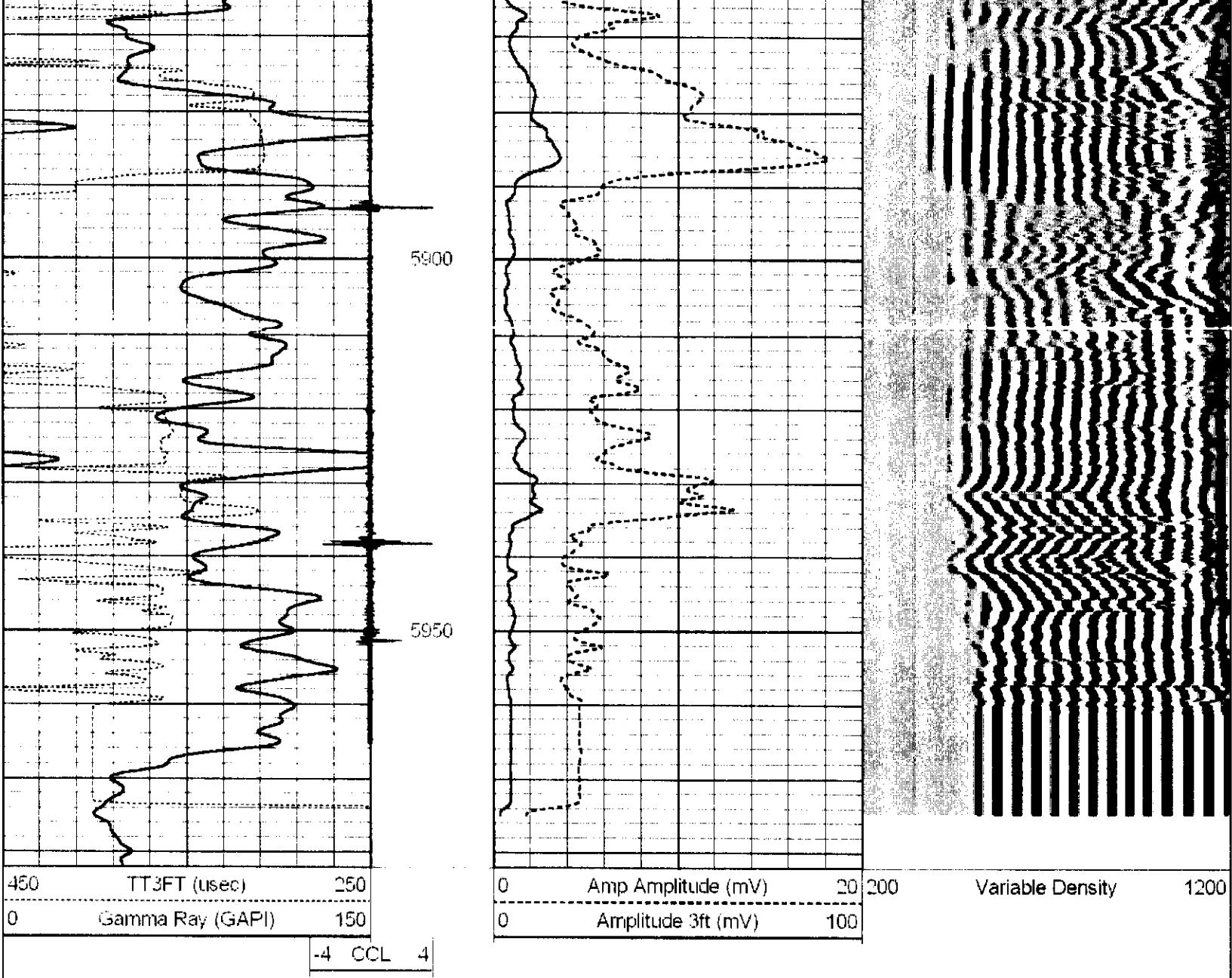
**CASEDHOLE
SOLUTIONS**

REPEAT PASS (0 PSI)

Dataset Pathname: PETROGLYP/2011/CBL1/pass3
Presentation Format: v-2451cbl
Dataset Creation: Tue Jan 01 00:51:30 2002 by Log Std Casedhole 09061
Charted by: Depth in Feet scaled 1:240

450	TT3FT (usec)	250	0	Amp Amplitude (mV)	20	200	Variable Density	1200
0	Gamma Ray (GAPI)	150	0	Amplitude 3ft (mV)	100			
		-4 CCL 4						





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			STNDRD Standard Cable Head	1.00	1.44	10.00
CCL	0 00		CCL-CCLTEK275 (4CCL2.75) 2 3/4" TEKCO LOGGING COLLAR LOCATOR	1.83	2.75	20.00
			CENTTEK1.1 1 3/4" APPLIED CENTRALIZER	2.90	1.75	10.00

TEMP	-6.23						
WVF3FT	-8.40			CBLTEKCO TEMP-TEKCO TEMP (8CBLT2.79.08 Tekco 2 3/4" Dual Receiver with Temp)	2.75	102.00	
WVF5FT	-9.40						
WVFCAL	-12.65						
WVFTEMP	-12.65						
WVFSYNC	-12.65			CENTTEK1.3 1 3/4" APPLIED CENTRALIZER	2.90	1.75	10.00
GR	-18.33			GR-GRSTEK1.6 (GRS1.1) 1 11/16" TEKCO SCINT. LOGGING GAMMA RAY	3.79	1.69	20.00

Dataset: v-2451.db: PETROGLYP/2011/CBL1/pass3
 Total Length: 21.50 ft
 Total Weight: 172.00 lb
 O.D. 2.75 in


Riley's®

ATTACHMENT NO. 8

OPEN HOLE LOG FOR THE UIC WELL

HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON

PETROGLYPH OPERATING COMPANY		UTE TRIBAL 20-11		ANTELOPE CREEK		DUCHESTER		UTAH	
COMPANY	PETROGLYPH OPERATING COMPANY	WELL	UTE TRIBAL 20-11	FIELD	ANTELOPE CREEK	COUNTY	DUCHESTER	STATE	UTAH
Permanent Datum	GL	KB							
Log measured from	KB								
Drilling measured from	KB								
Date	17-Jun-10								
Run No.	ONE								
Depth - Driller	6042.00 ft								
Depth - Logger	6041.0 ft								
Bottom - Logged Interval	6016.0 ft								
Top - Logged Interval	100.0 ft								
Casing - Driller	8.625 in	②	507.0 ft						
Casing - Logger	508.0 ft								
Bit Size	7.875 in								
Type Fluid in Hole	WATER BASED MUD								
Density	Viscosity	8.3 ppg	27.00 sec						
pH	Fluid Loss	7.00 pH							
Source of Sample									
Rm @ Meas. Temp		②		②		Run No.	Type Log	Depth	Scale Up Hole
Rmf @ Meas. Temp.		②		②		ONE	ACRT-I207SB42	N/A	Scale Down Hole
Rmc @ Meas. Temp.		②		②					
Source Rmf / Rmc									
Rm @ BHT		②		②					
Rmf @ BHT		②		②					
Rmc @ BHT		②		②					
EQUIPMENT DATA									
GAMMA		ACOUSTIC		DENSITY		NEUTRON			
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE		
Serial No.	11277435	Serial No.		Serial No.	10895353	Serial No.	10813523		
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I		
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"		
Detector Model No.	GTET	Spacing		Log Type	GAMMA-GAMMA	Log Type	THERMAL		
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be		
Length	8"	LSA [Y/N]		Serial No.	5246GW	Serial No.	21480B		
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci		
LOGGING DATA									
GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Witnessed By	A. POLLARD								

DIV. OF OIL, GAS & MINING

JUL 2 9 2010
RECEIVED

Service Ticket No.: 7444594 API Serial No.: 43013340490000 PGM Version: WL IN SITE R2.6.1 (Build 9)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

Date	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
pH	Fluid Loss				

Source of Sample

RESISTIVITY EQUIPMENT DATA

Rm @ Meas. Temp	②	②	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rmf @ Meas. Temp.	②	②	ONE	ACRT-I207SB42	N/A	1.5" STANDOFF	N/A
Rmc @ Meas. Temp.	②	②					
Source Rmf / Rmc							
Rm @ BHT	②	②					
Rmf @ BHT	②	②					
Rmc @ BHT	②	②					

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11277435	Serial No.		Serial No.	10895353	Serial No.	10813523
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAMMA-GAMMA	Log Type	THERMAL
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5246GW	Serial No.	21480B
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL

GAMMA

ACOUSTIC

DENSITY

NEUTRON

GENERAL		GAMMA		ACOUSTIC		DENSITY		NEUTRON				
Run	Depth	Speed	Scale	Scale	Matrix	Scale		Matrix	Scale		Matrix	
No.	From	To	ft/min	L R		L R	L		L	R		
ONE	6041'	100'	REC	0 200			30%	-10%	2.68 g/cc	30%	-10%	SAND

DIRECTIONAL INFORMATION

Maximum Deviation



KOP



Remarks: RWCH, GTET, DSNT, SDLT, ACRT RAN IN COMBINATION.

ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH PRODUCTION CASING.

BOREHOLE RUGOSITY, TENSION PULLS, AND WASHOUT MAY EFFECT TOOL RESPONSE.

CHLORIDES: 100 mg/L

LATITUDE: 40.030248°N

LONGITUDE: 110.248239°W

TODAY'S CREW: M. BARTHOLOMEUSZ & R. HORSLEY

THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - VERNAL, UT (435) 789-2550

HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
SHARED	BS	Bit Size		7.875	in
SHARED	UBS	Use Bit Size instead of Caliper for all applications.		No	
SHARED	MDWT	Borehole Fluid Weight		8.340	ppg
SHARED	OBM	Oil Based Mud System?		No	
SHARED	RMUD	Mud Resistivity		0.810	ohmm
SHARED	TRM	Temperature of Mud		75.0	degF
SHARED	CSD	Logging Interval is Cased?		No	
SHARED	ICOD	AHV Casing OD		5.500	in
SHARED	ST	Surface Temperature		75.0	degF
SHARED	TD	Total Well Depth		6041.00	ft
SHARED	BHT	Bottom Hole Temperature		140.0	degF
Rwa / CrossPlot	XPOK	Process Crossplot?		Yes	
Rwa / CrossPlot	FCHO	Select Source of F		Automatic	
Rwa / CrossPlot	AFAC	Archie A factor		0.6200	
Rwa / CrossPlot	MFAC	Archie M factor		2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference		0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp		75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water		0.05	ohmm
GTET	GROK	Process Gamma Ray?		Yes	
GTET	GRSO	Gamma Tool Standoff		0.000	in

GTET	GEOK	Process Gamma Ray EVR?	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLT	Neutron Lithology	Sandstone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	AD	Is Hole Air Drilled?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
TGS	SDLT A2D	DTWN	Disable temperature warning	No
SDLT	MOTP	Weighted Mud Correction Type?	None	
SDLT	DMA	Formation Density Matrix	2.680	
SDLT	DFL	Formation Density Fluid	1.000	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt	TPOS	Tool Position	Eccentered	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	
ACRt	RMAX	Maximum Resistivity for MAP	200.00	

BOTTOM

Data: PETRO_Ute_20_110001 IQ_TRIPLEIDLE

Date: 17-Jun-10 20:04:22

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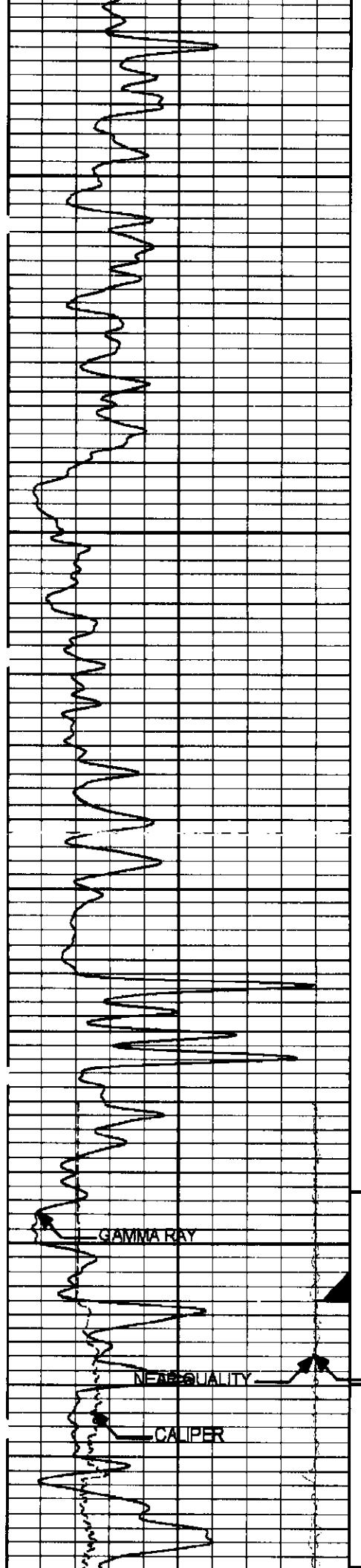
Plot Time: 17-Jun-10 21:45:50
 Plot Range: 96 ft to 8051.92 ft
 Data: PETRO_Ute_20_11Well Based(MAIN)
 Plot File: \\PORN\PGSIN\M

MAIN PASS 5" = 100'

0	GAMMA RAY	200		30	DEN POROSITY			-10
	api				2.68			
6	CALIFER	16	AHV	30	NEU POROSITY			-10
	inches				sand			
-45	NEAR QUALITY	5	BHV		10000			0
					TENSION			
45	FAR QUALITY	-5	1 : 240	0	pounds			
			FT.	PE	10			
					0.25	DENSITY COR.		0.25
						g/cc		
				100				

200

300



400

TGS

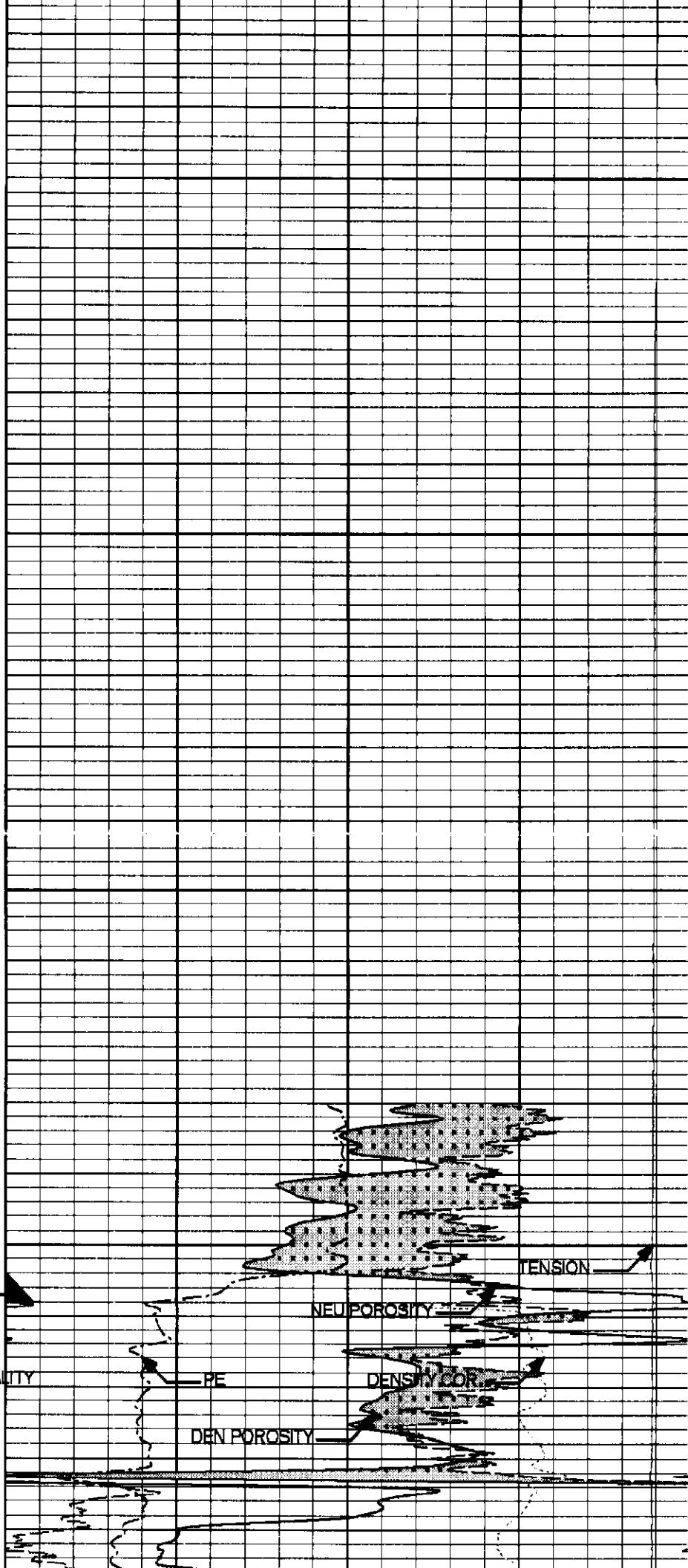
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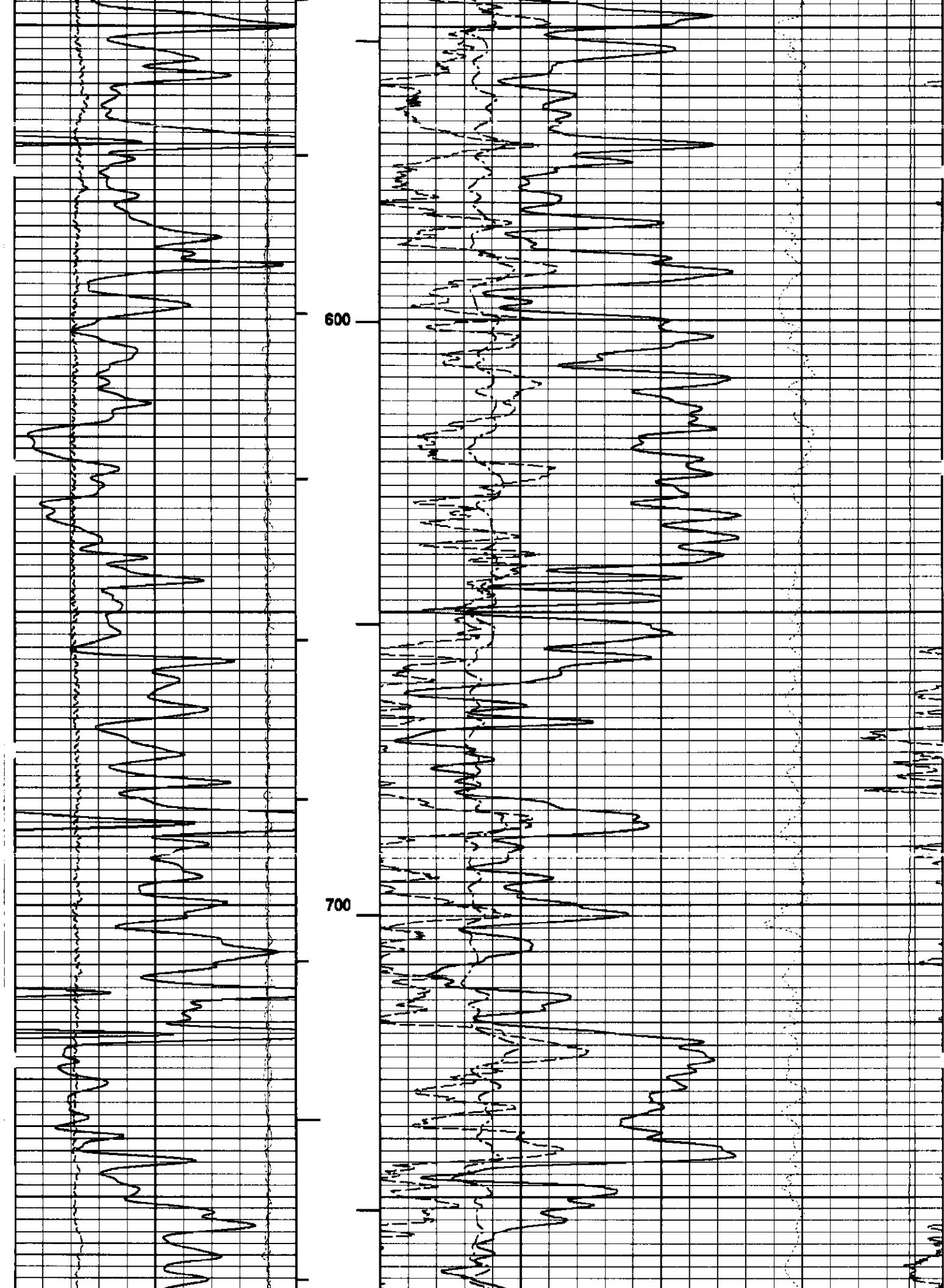
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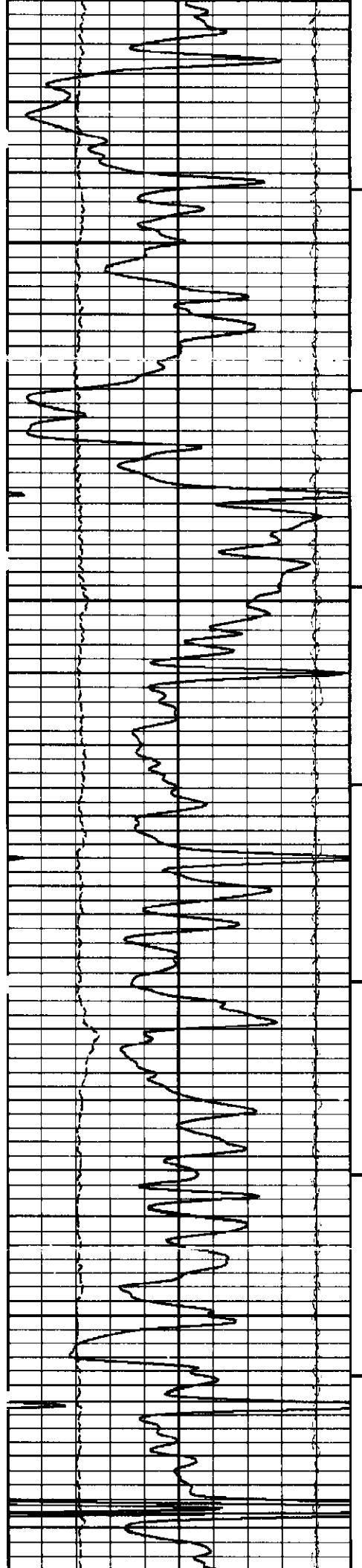
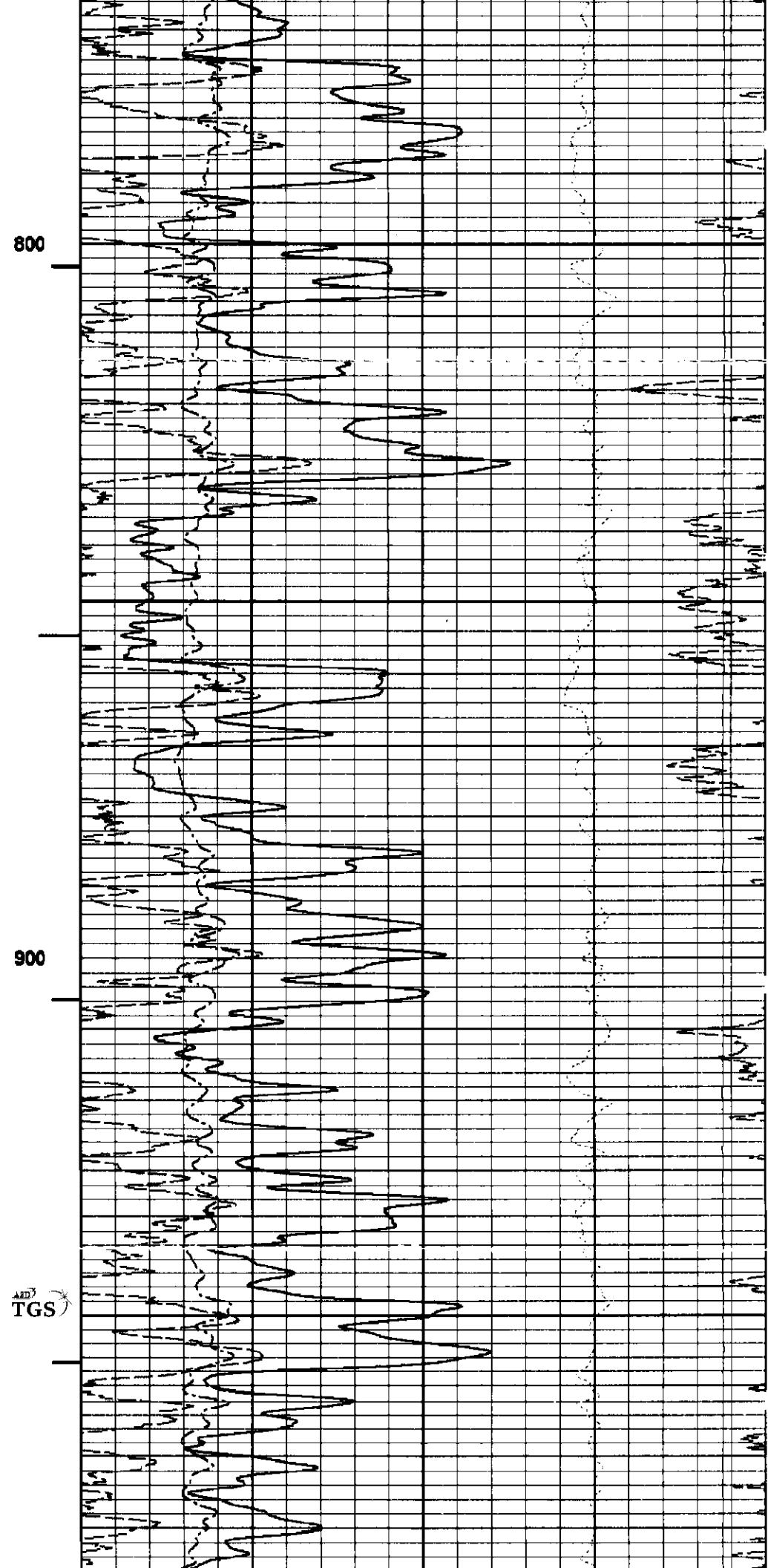
FAR QUALITY

NEAR QUALITY

CALIPER







GAMMA RAY

1000

NEAR QUALITY

FAR QUALITY

CALIPER

TENSION

NEUTROPOROSITY

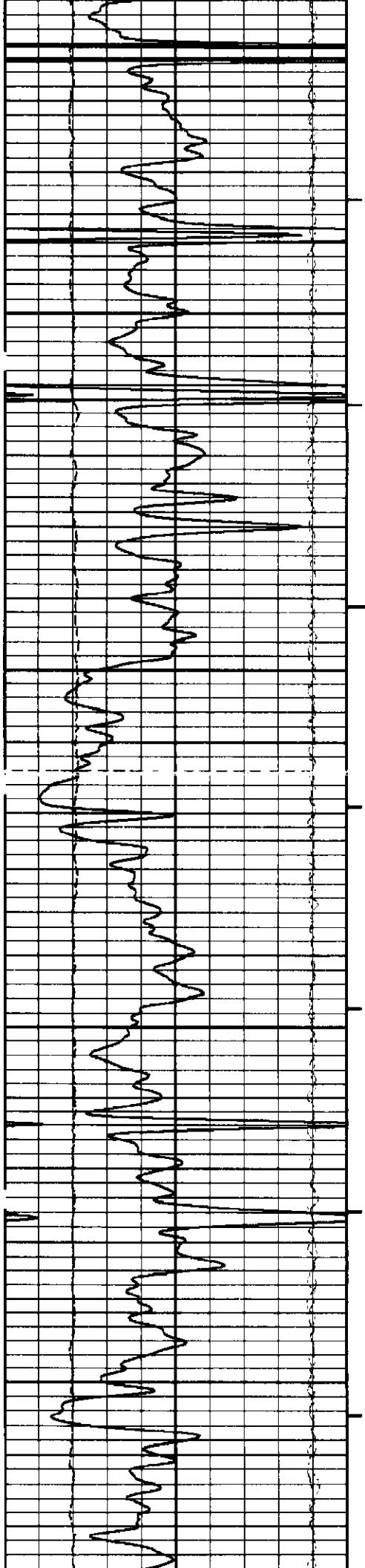
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DENSITY COR.

DEN POROSITY

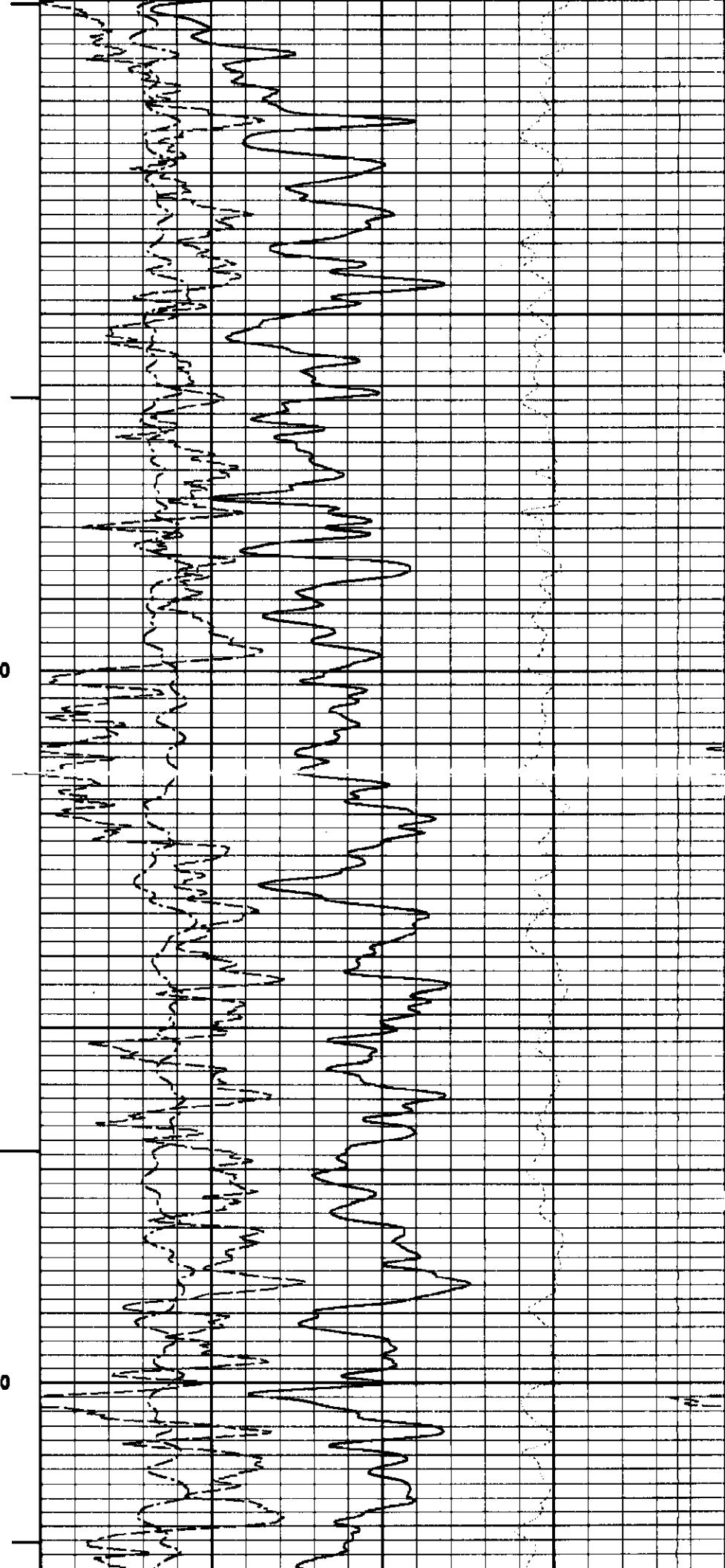
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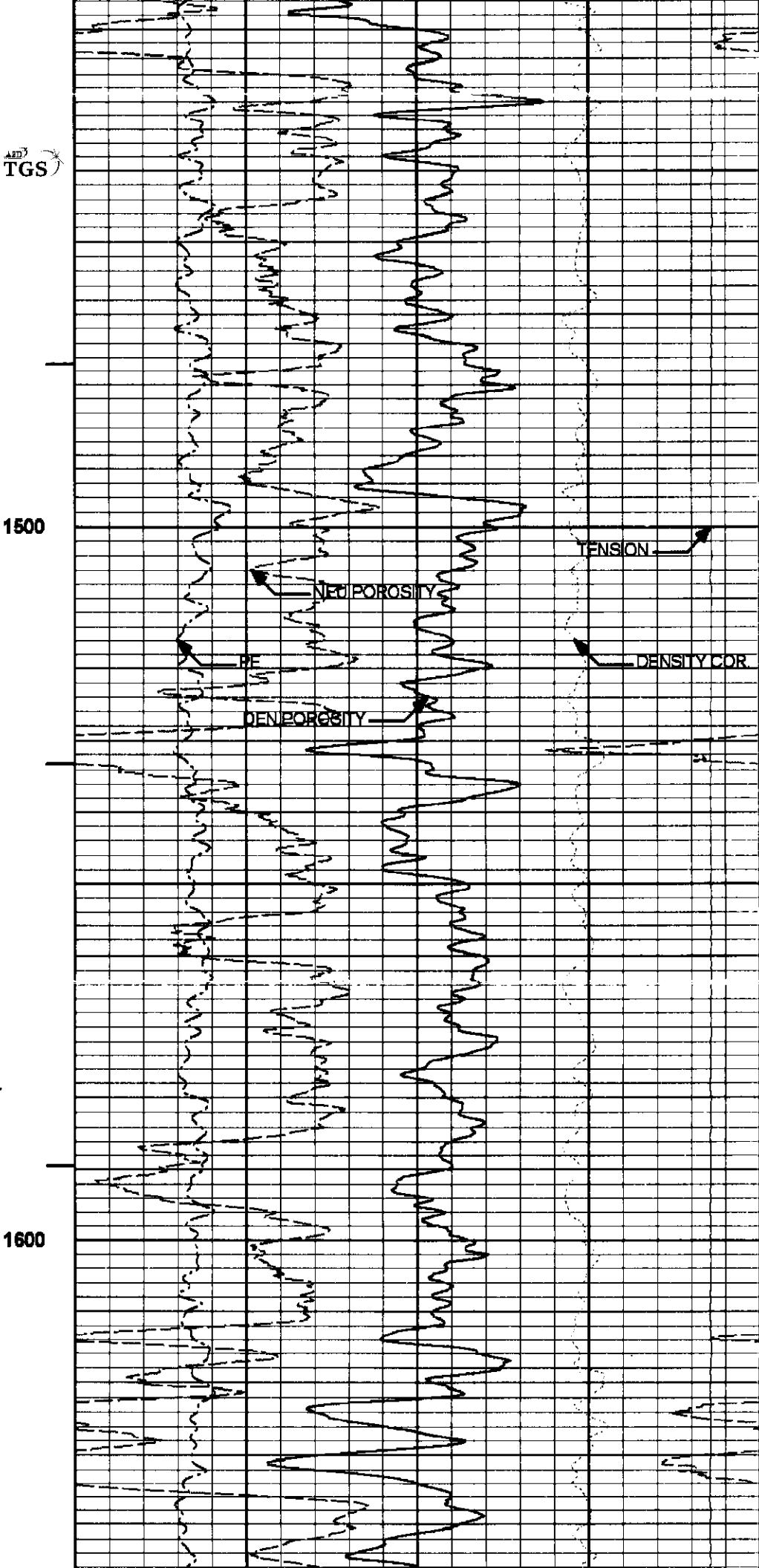
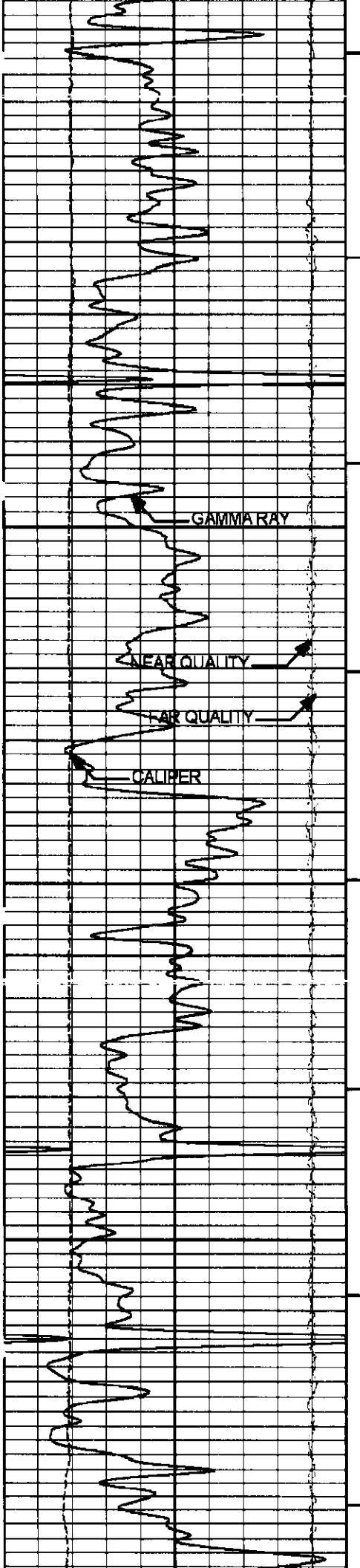
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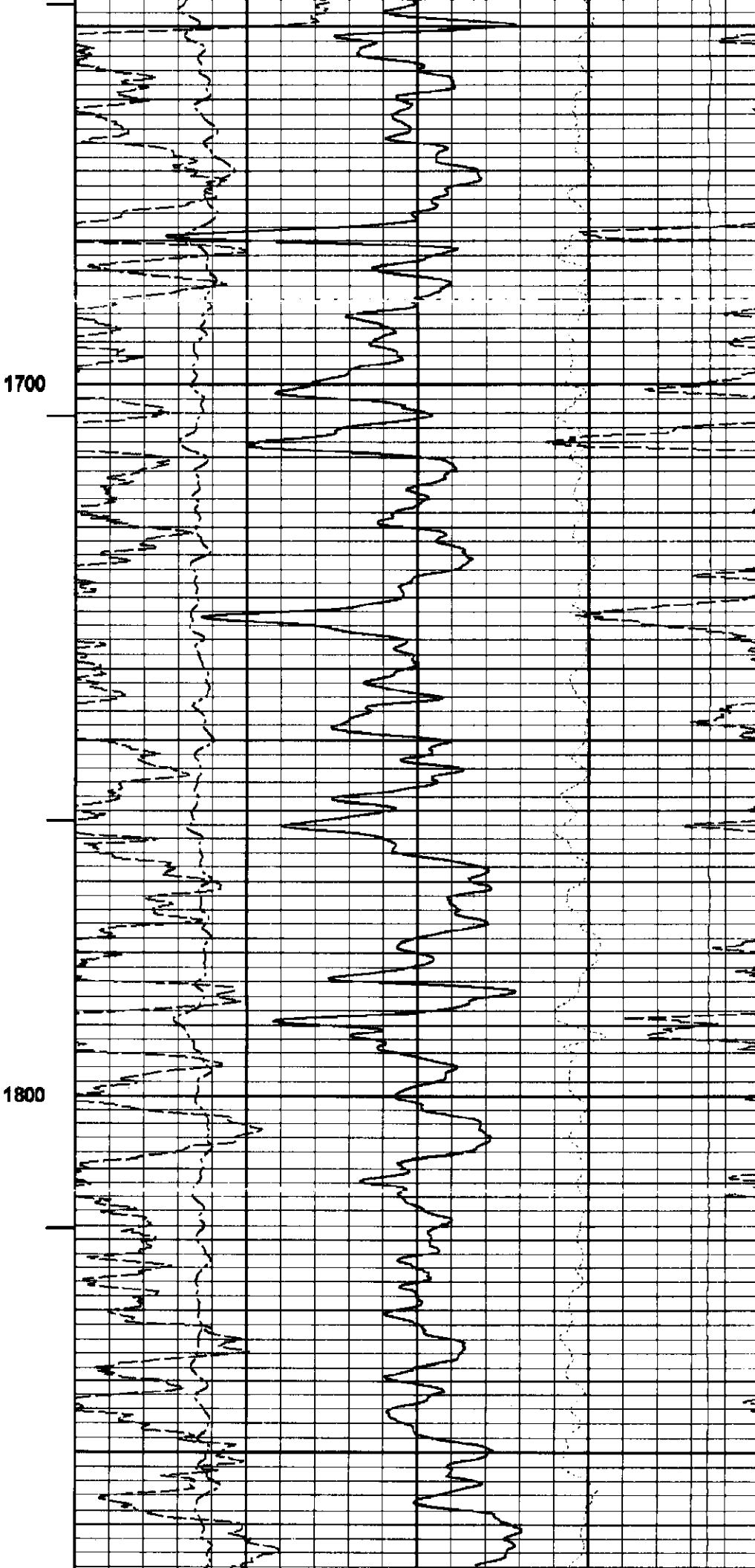
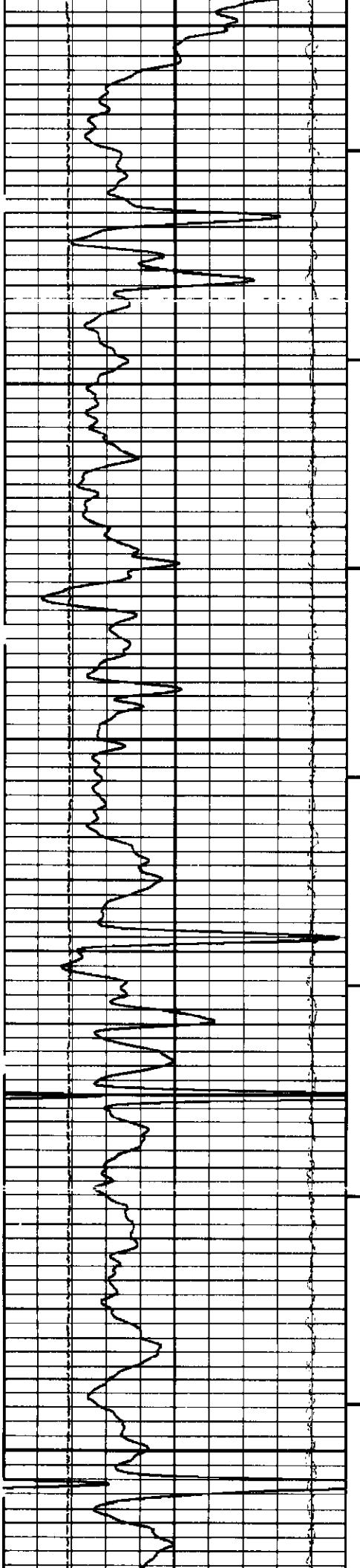


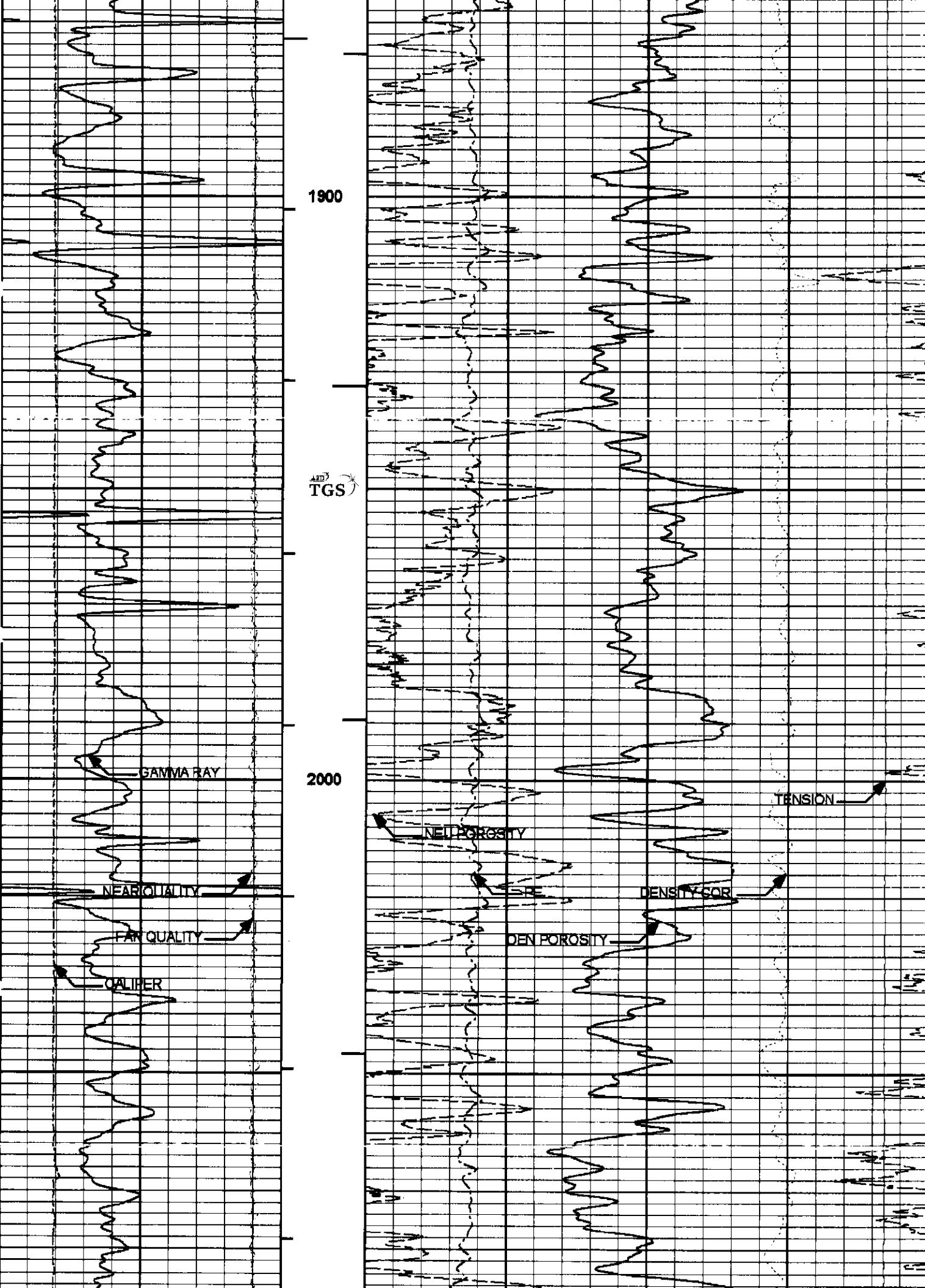
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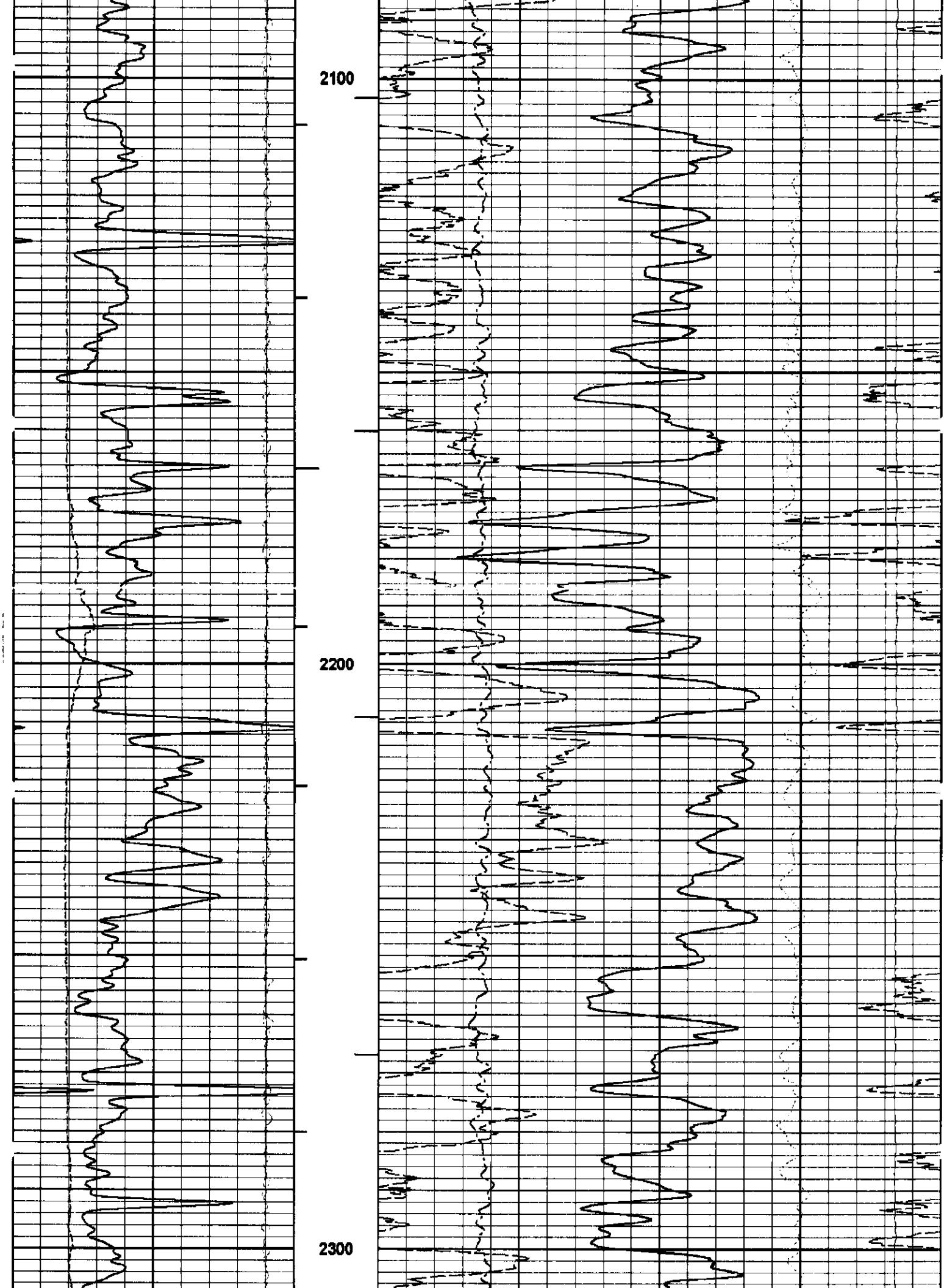


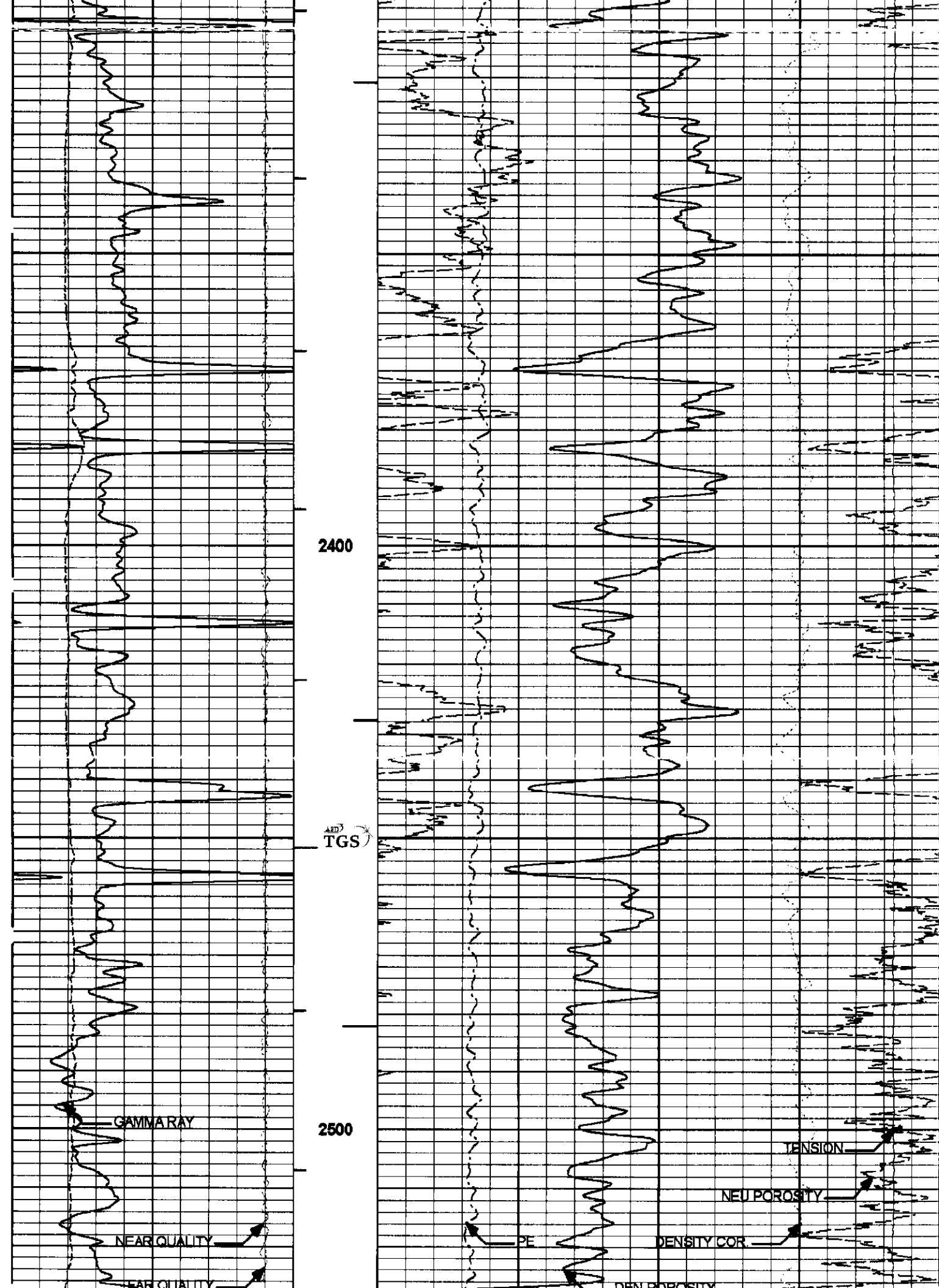


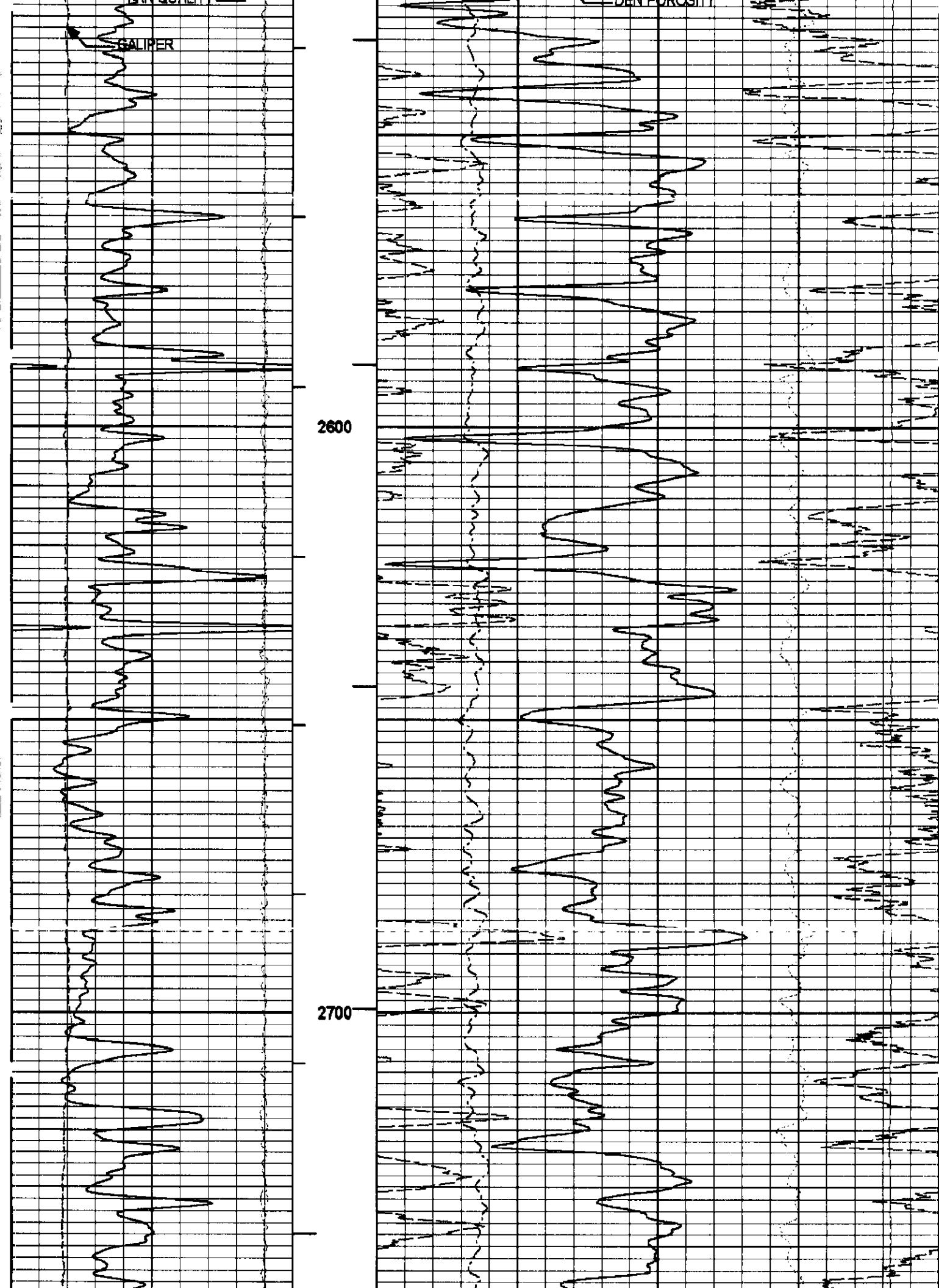
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2200

2300



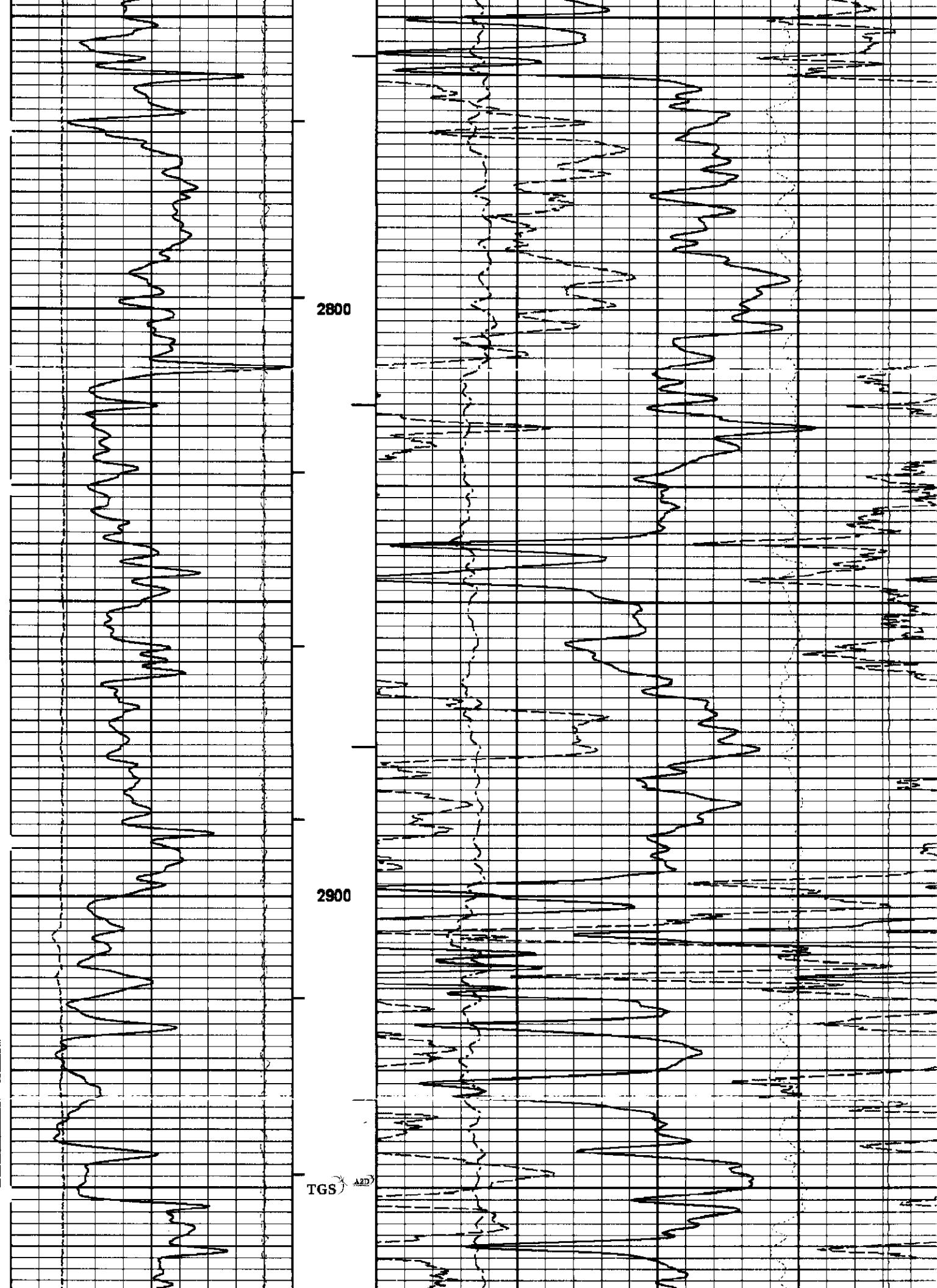


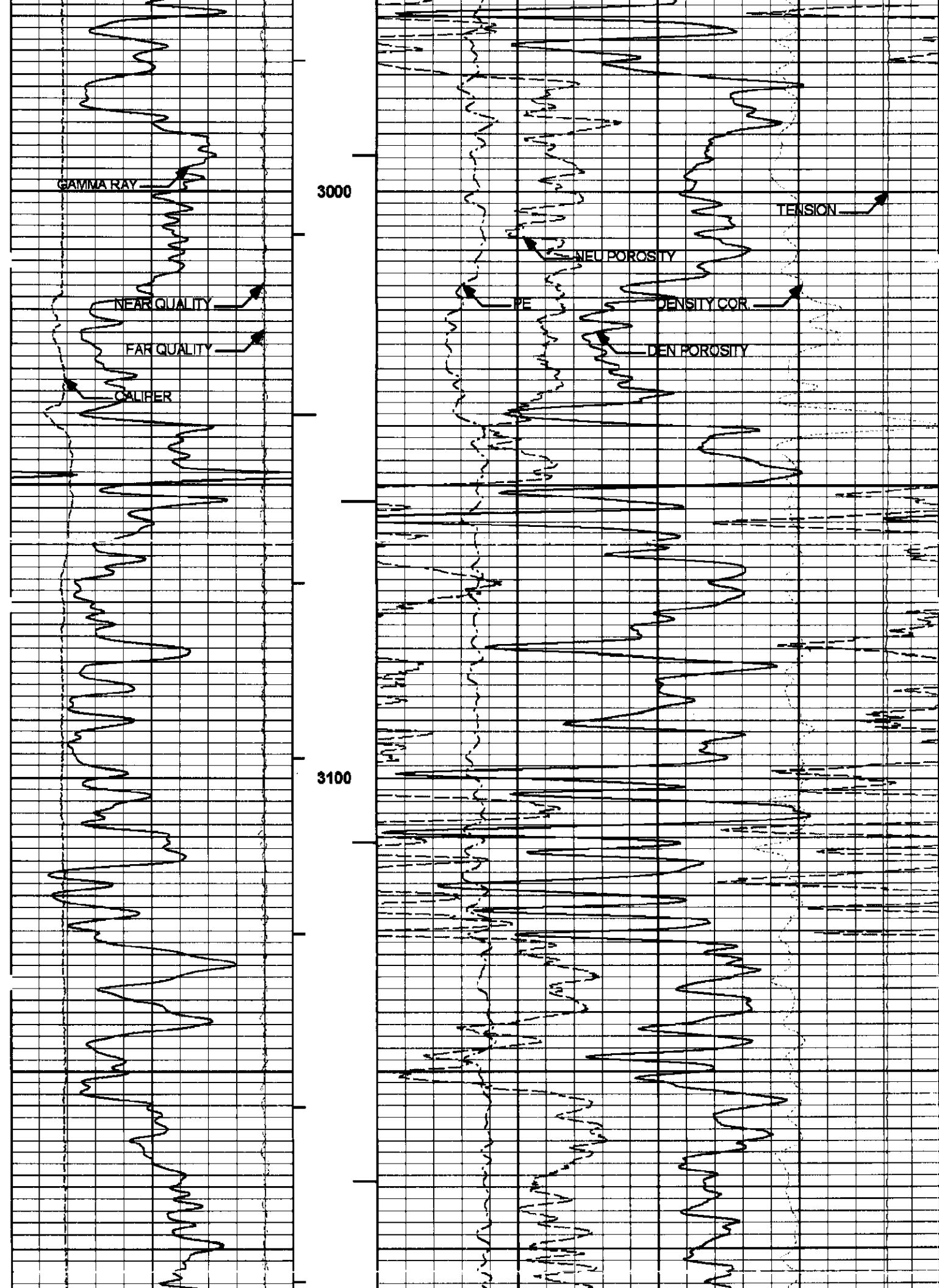


2800

2900

TGS A2D

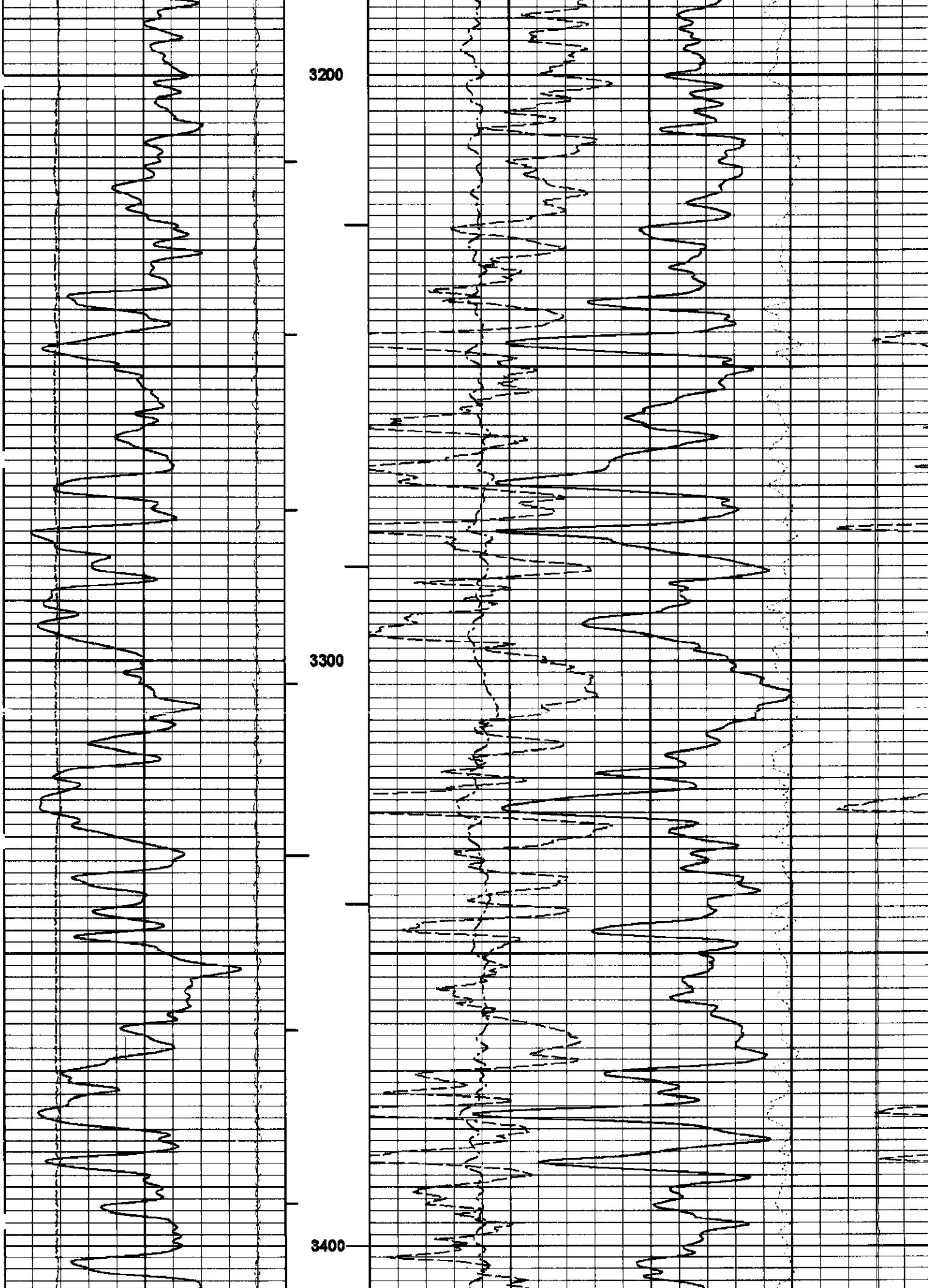


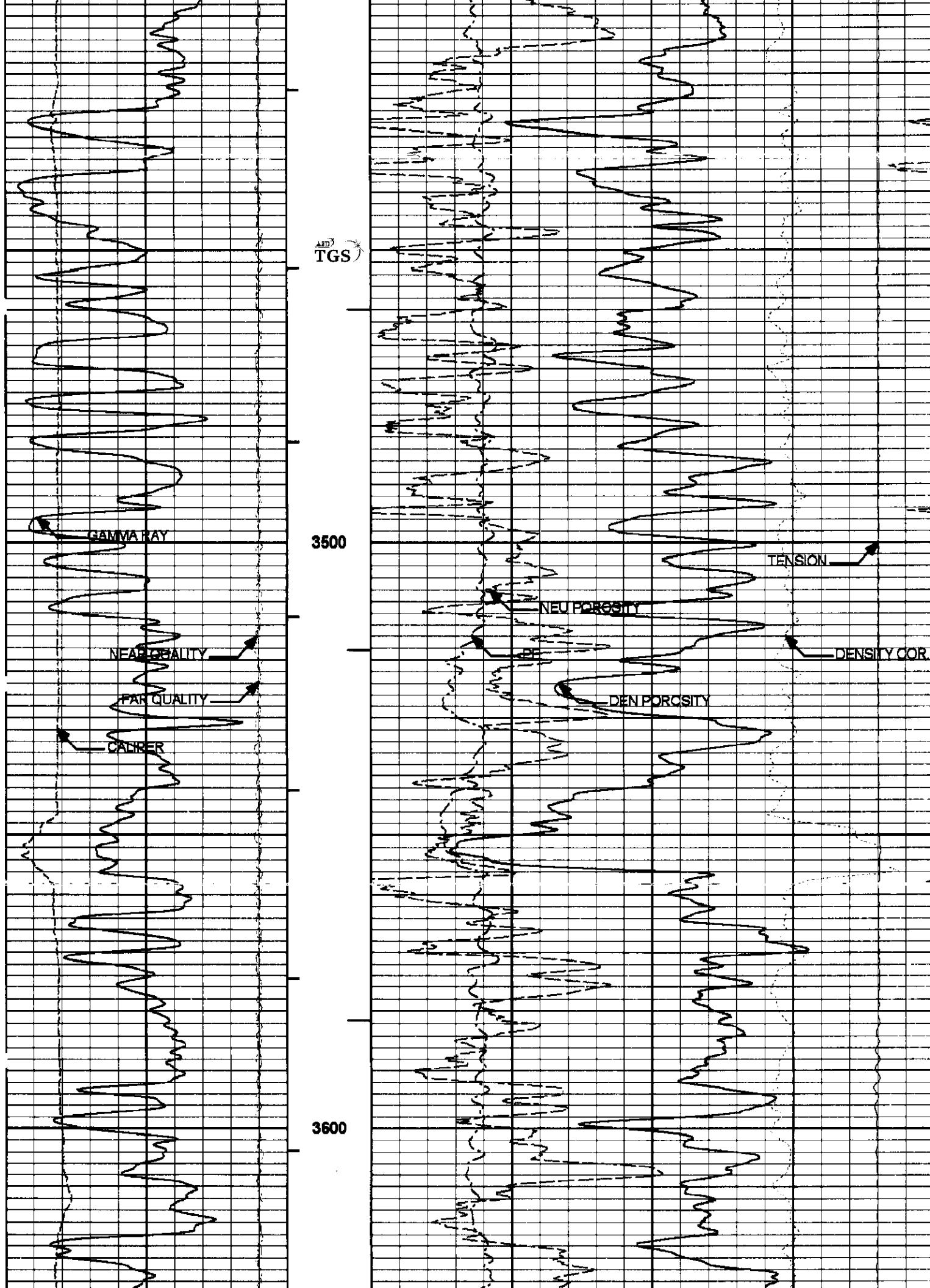


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3300

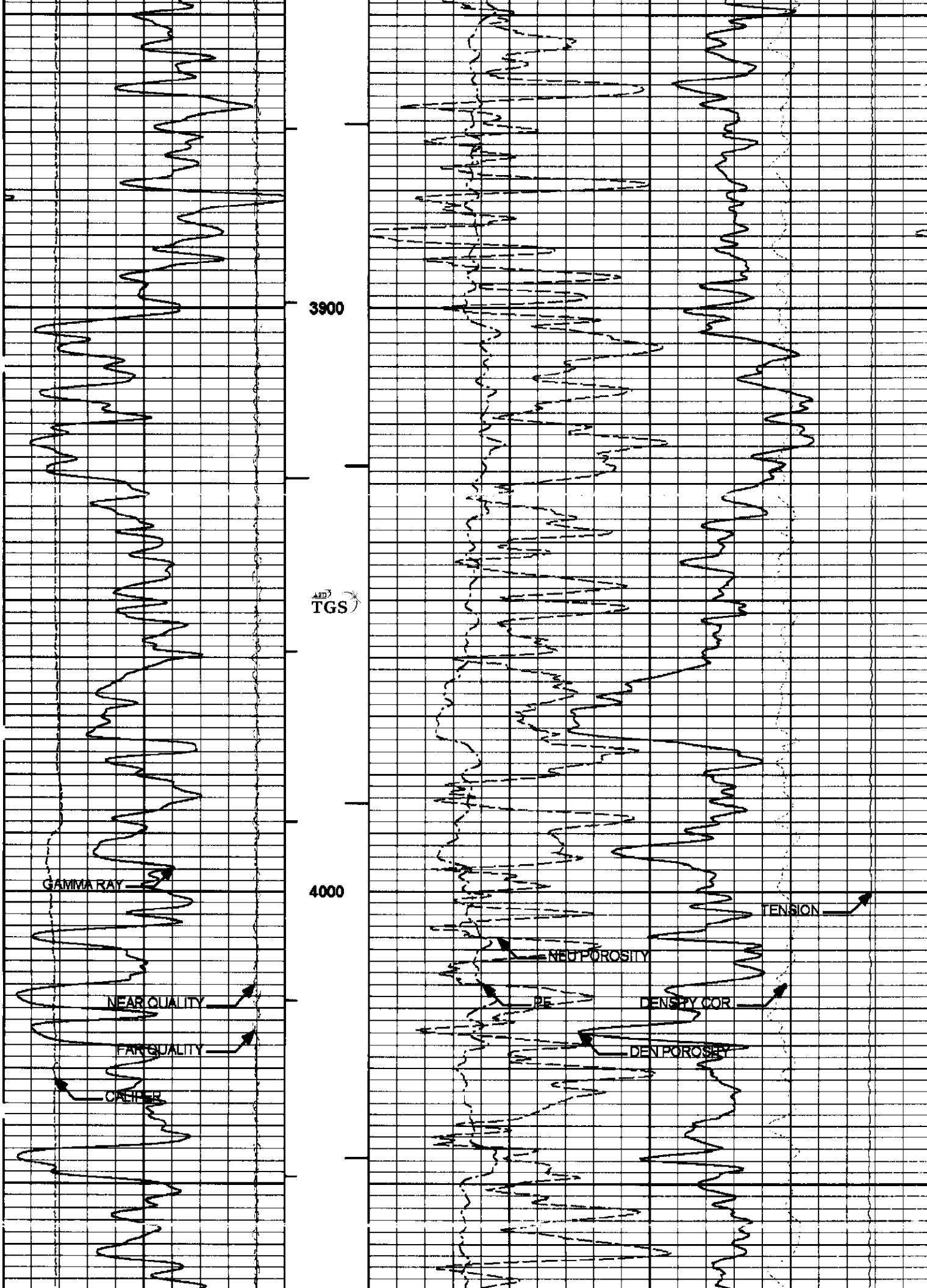
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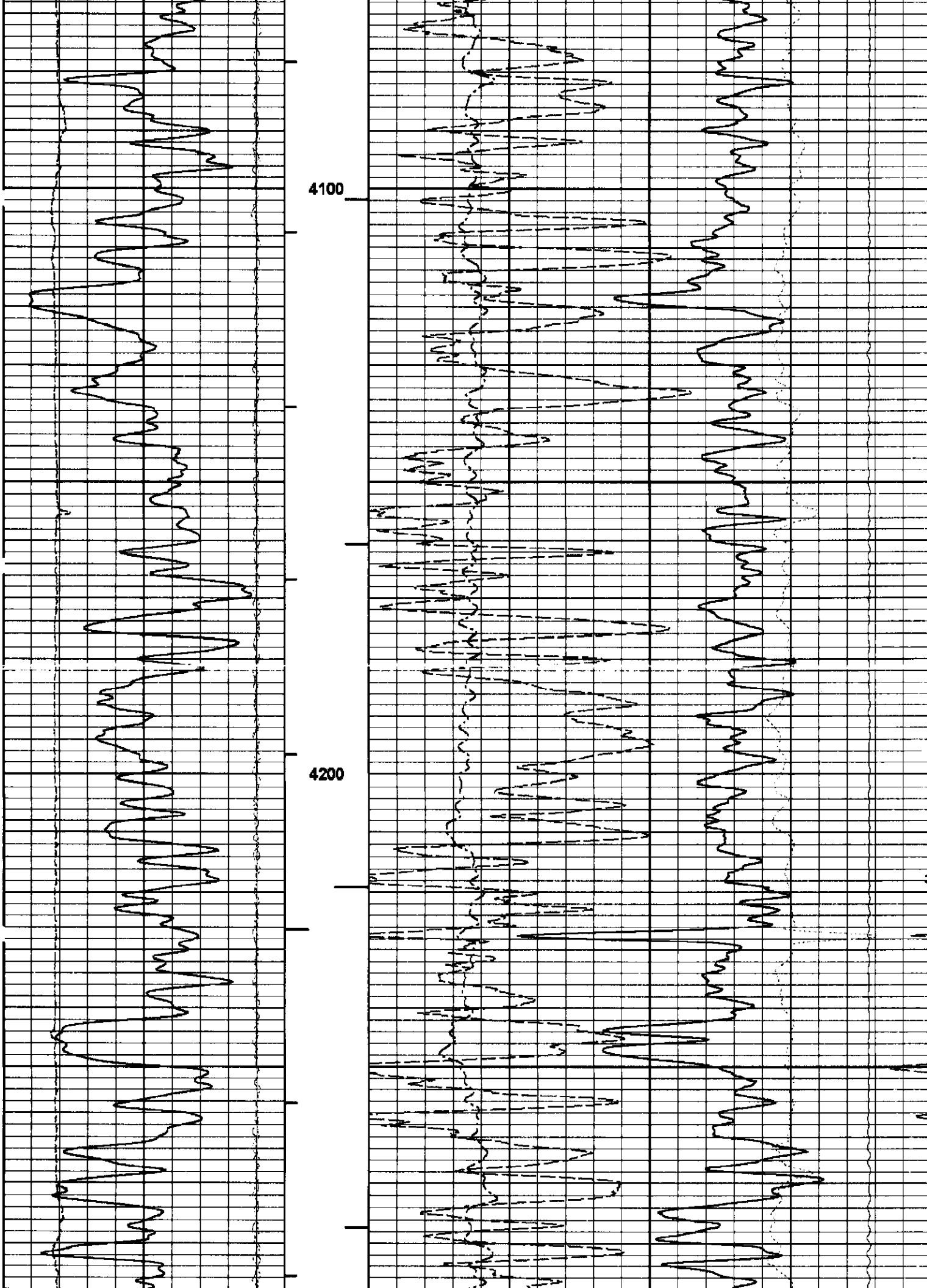


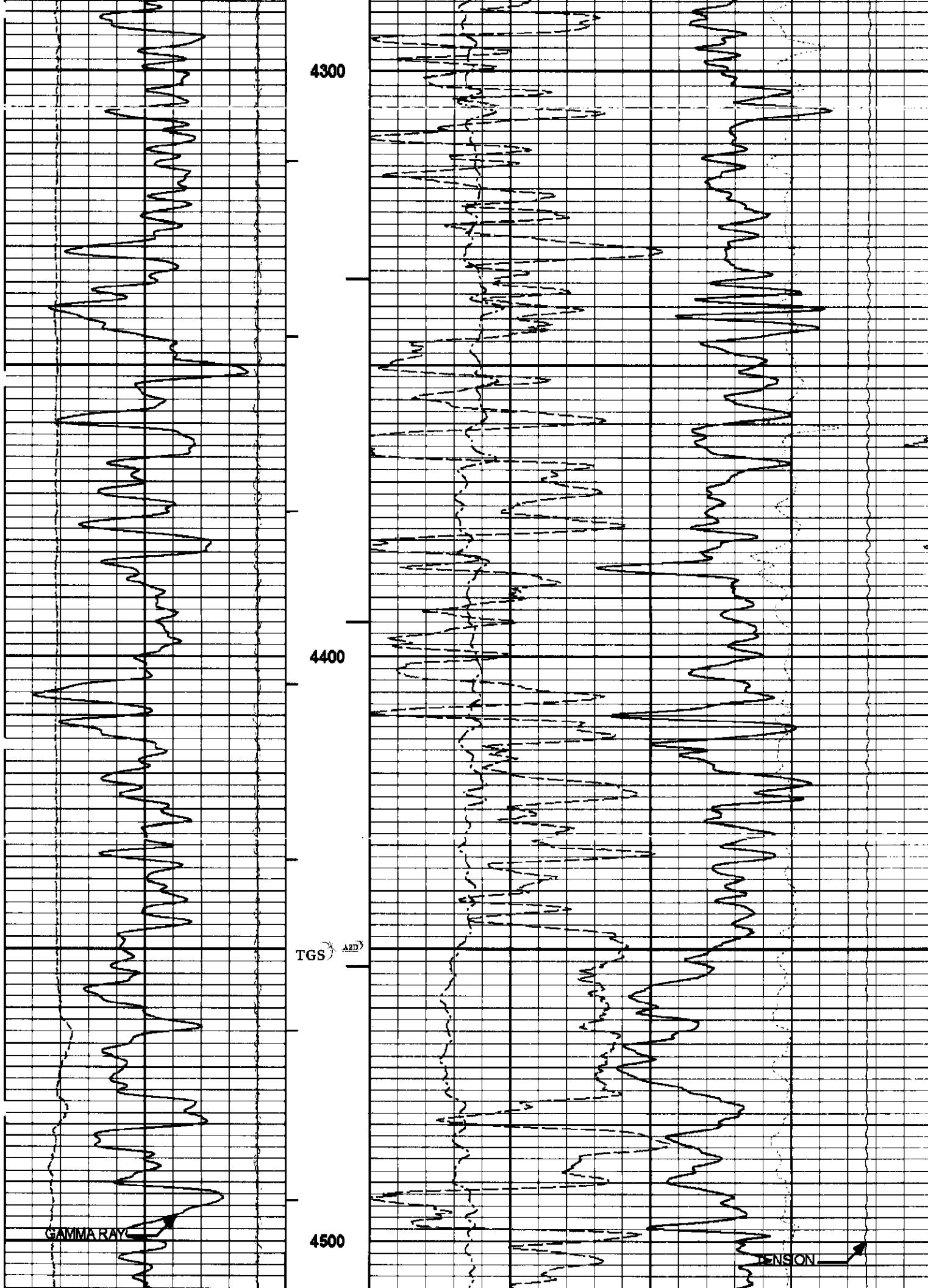


3700

3600







NEAR QUALITY

FAR QUALITY

CALIPER

NEUTROCOROSITY

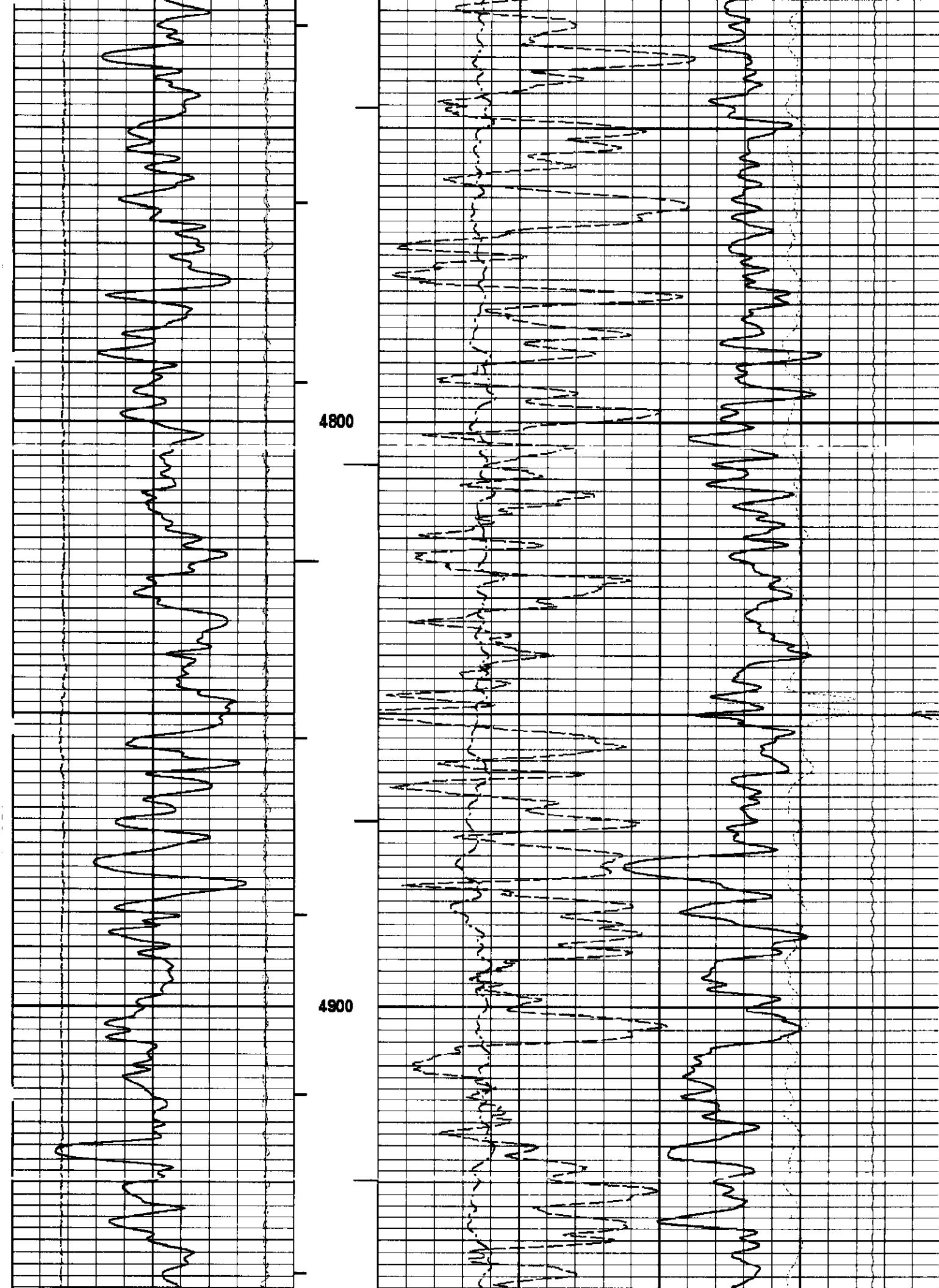
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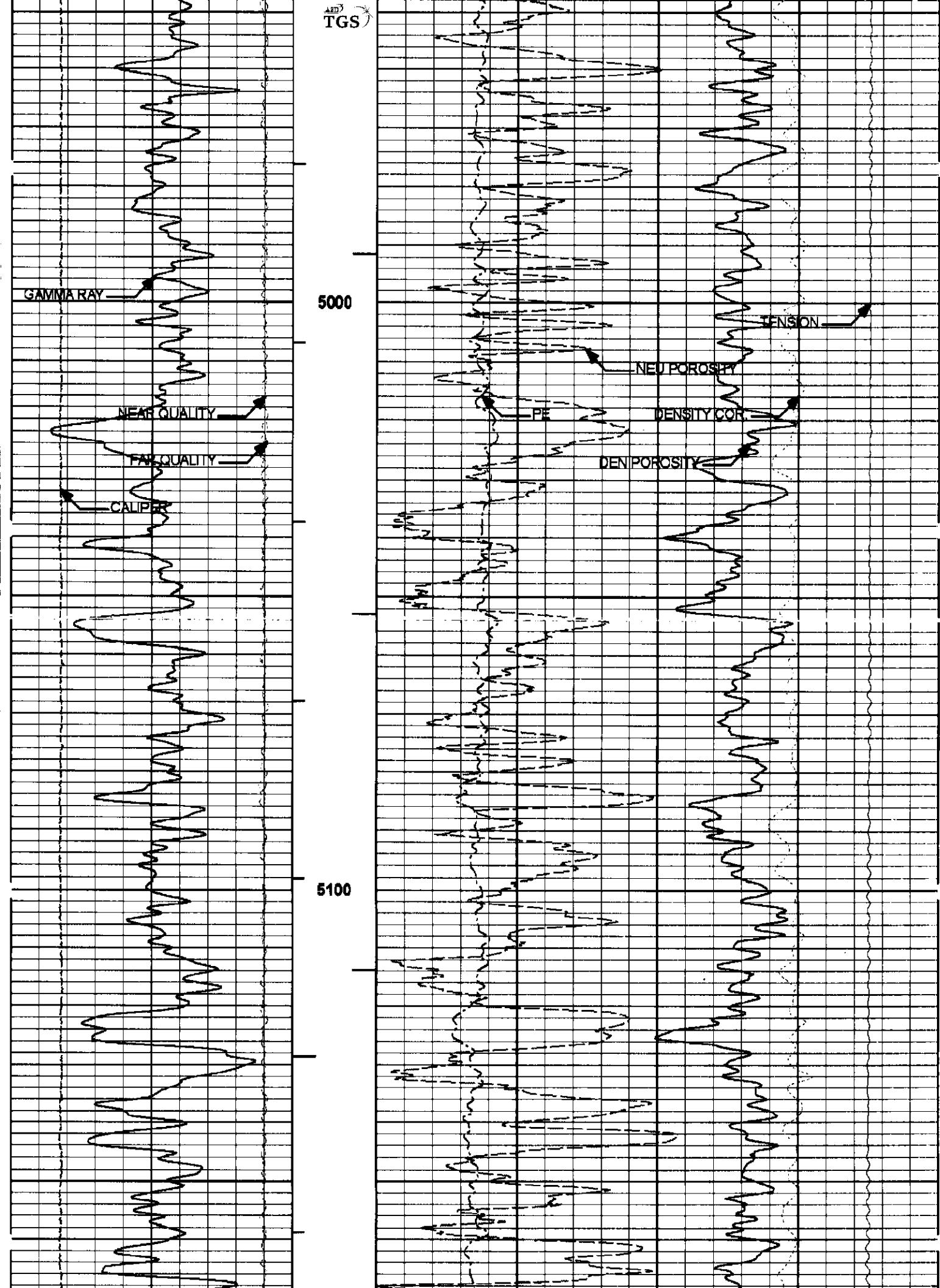
DENSITY GOR

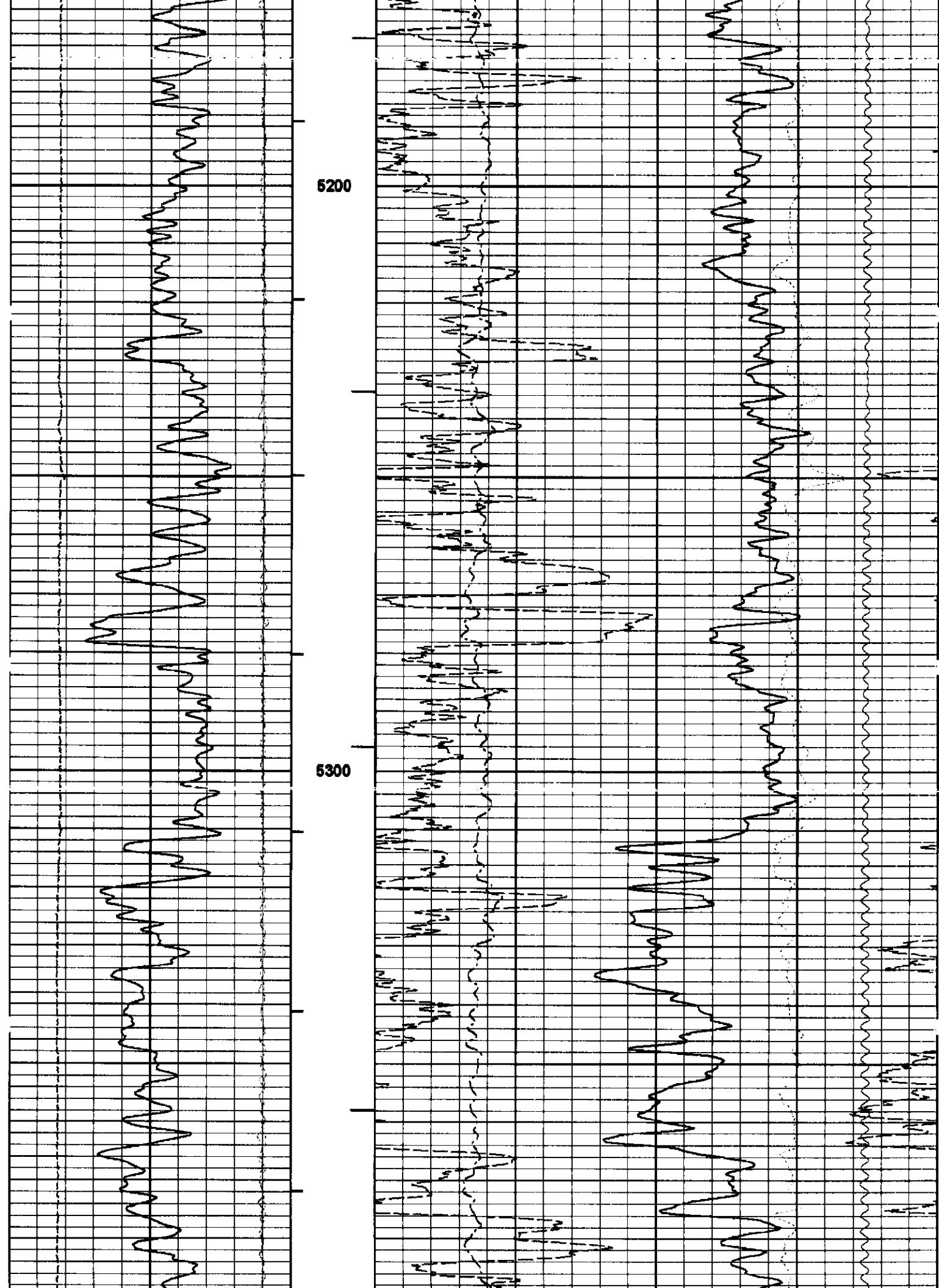
DEN POROSITY

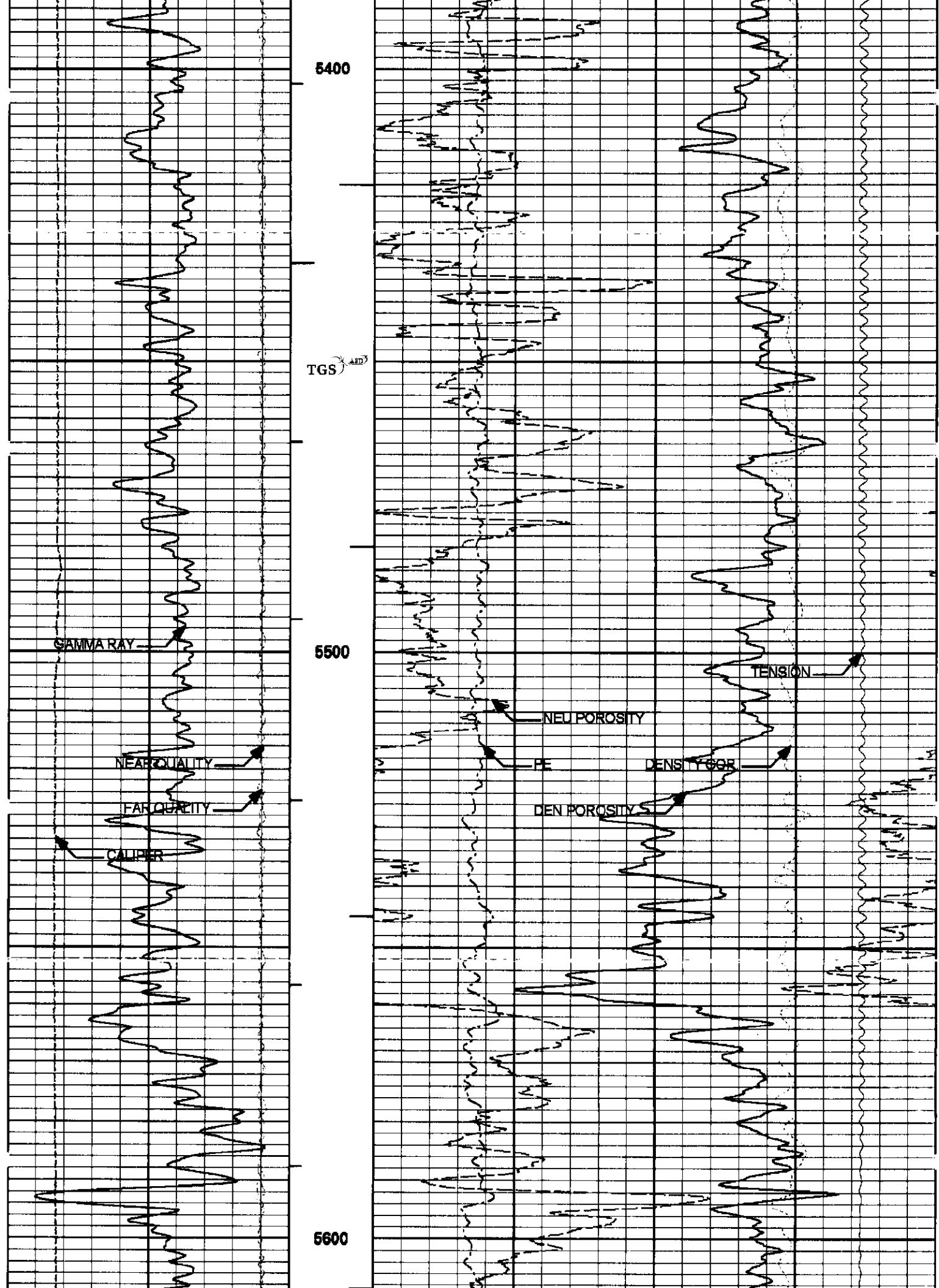
4600

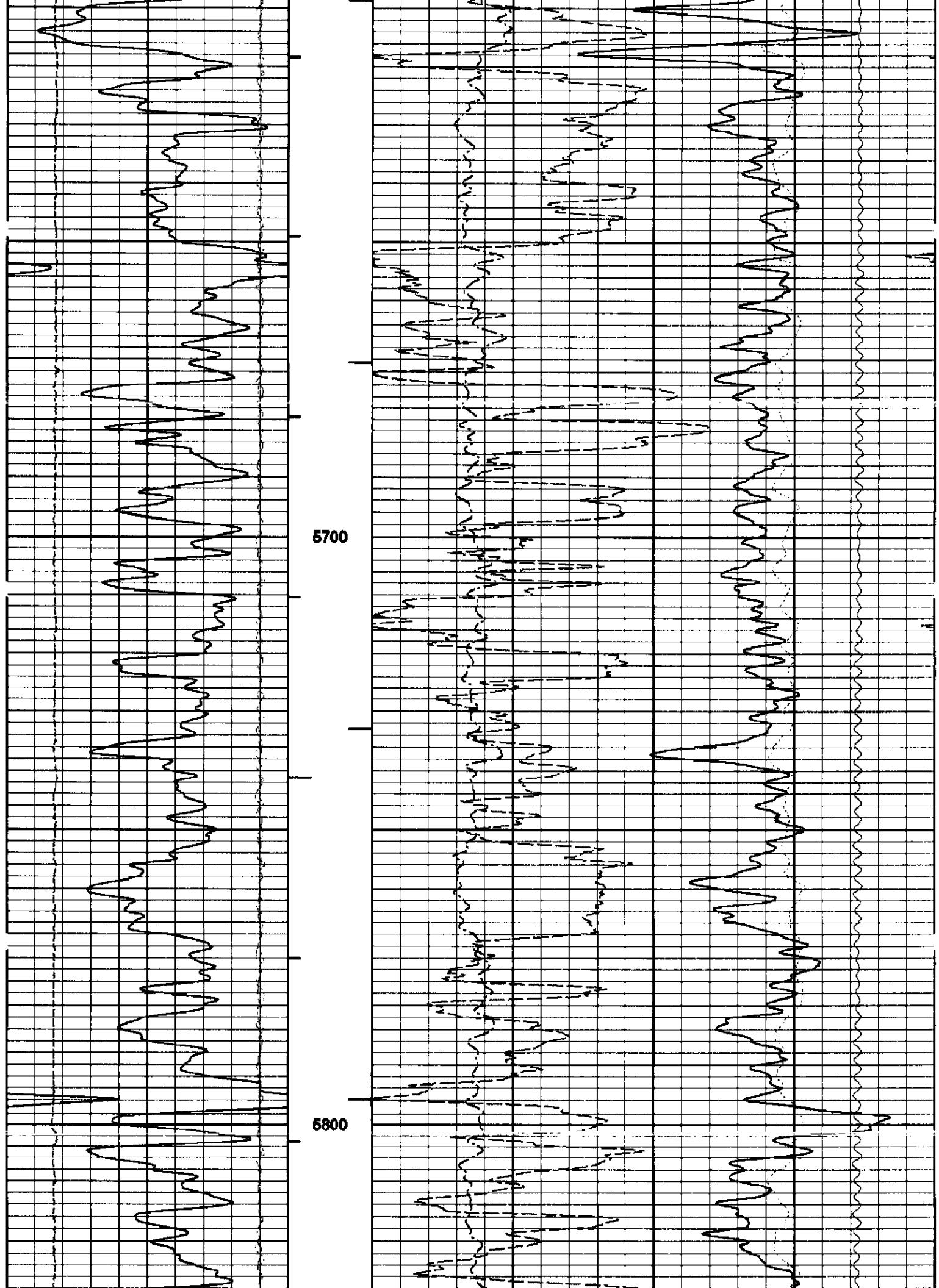
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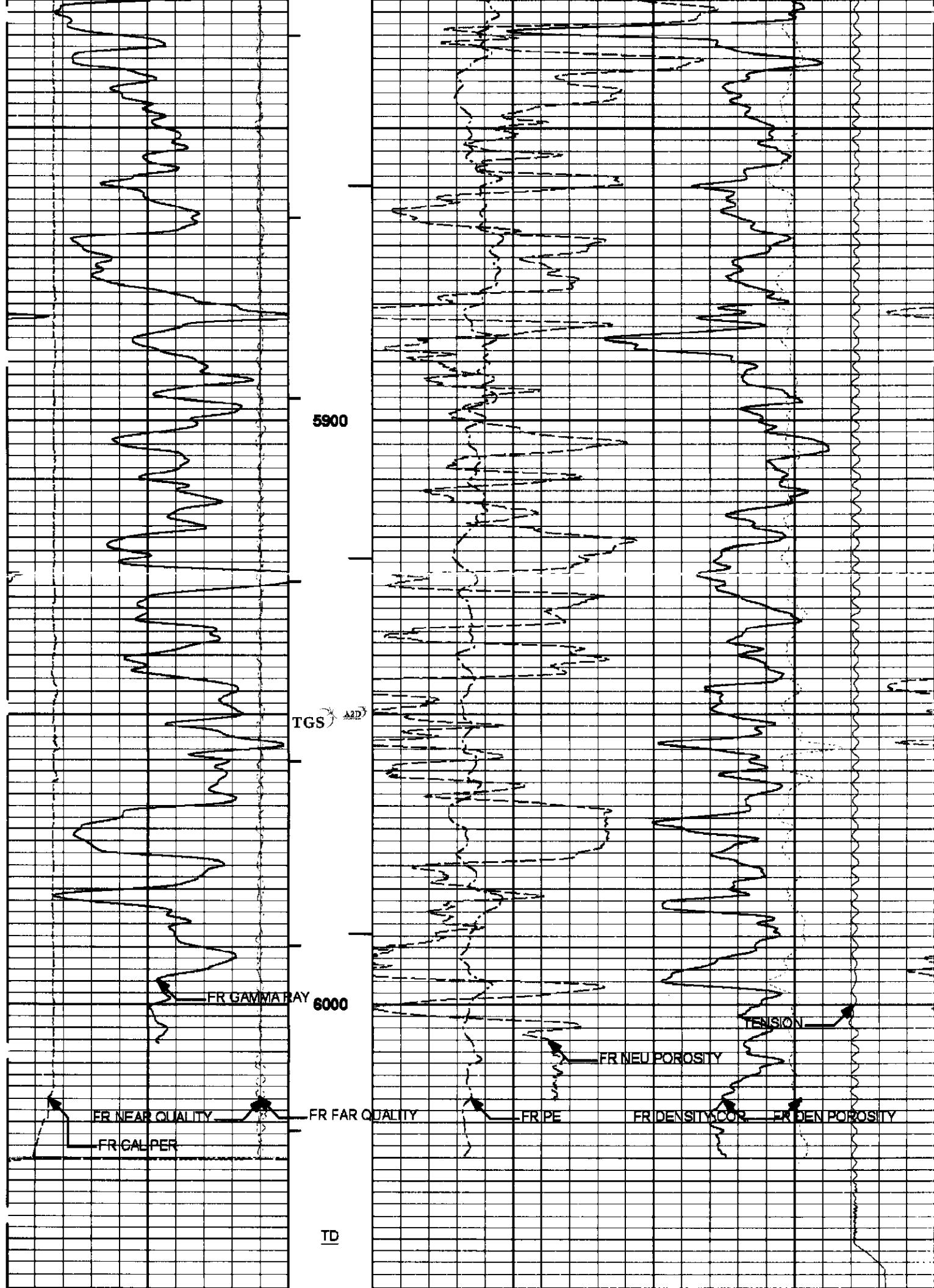












45	FAR QUALITY	-5	1 : 240 FT. BHV AHV	0	PE	10	-0.25	DENSITY COR.	0.25
-45	NEAR QUALITY	5						g/cc	
6	CALIPER	18		30				TENSION	0
	inches							pounds	
0	GAMMA RAY	200		30				DEN POROSITY	-10
	api							send	
								2.68	

HALLIBURTON

Plot Time: 17-Jun-10 21:45:54
 Plot Range: 96 ft to 6051.92 ft
 Data: PETRO_UTE_20_11\Well Based\MAIN\
 Plot File: \PORU_PORSIN_M

MAIN PASS 5" = 100'

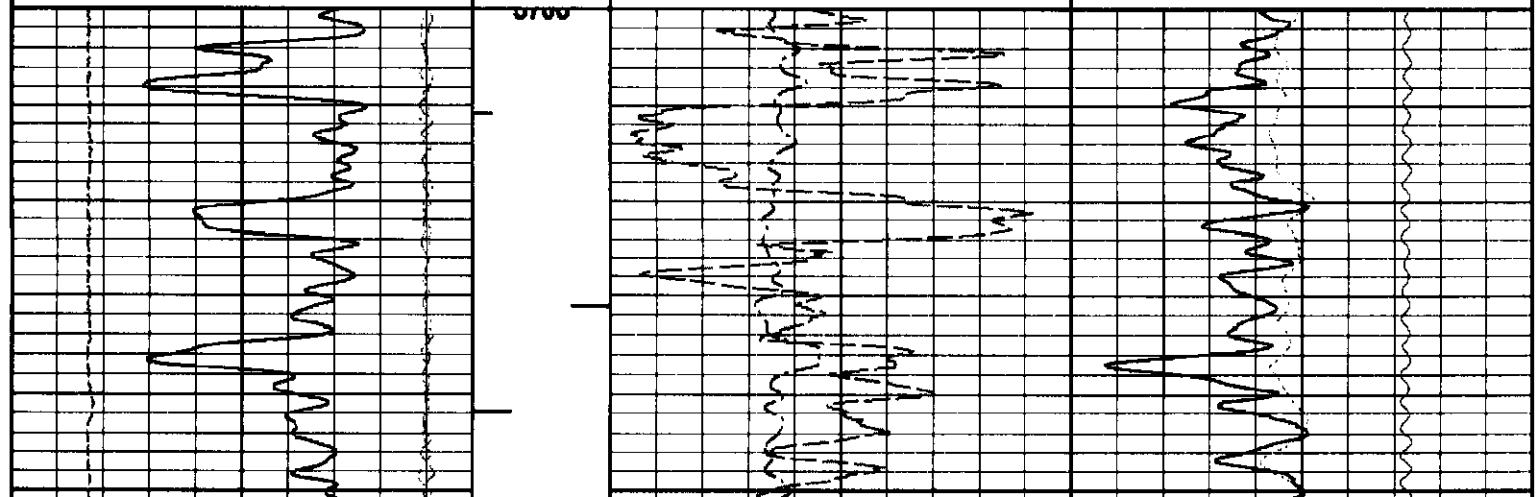
HALLIBURTON

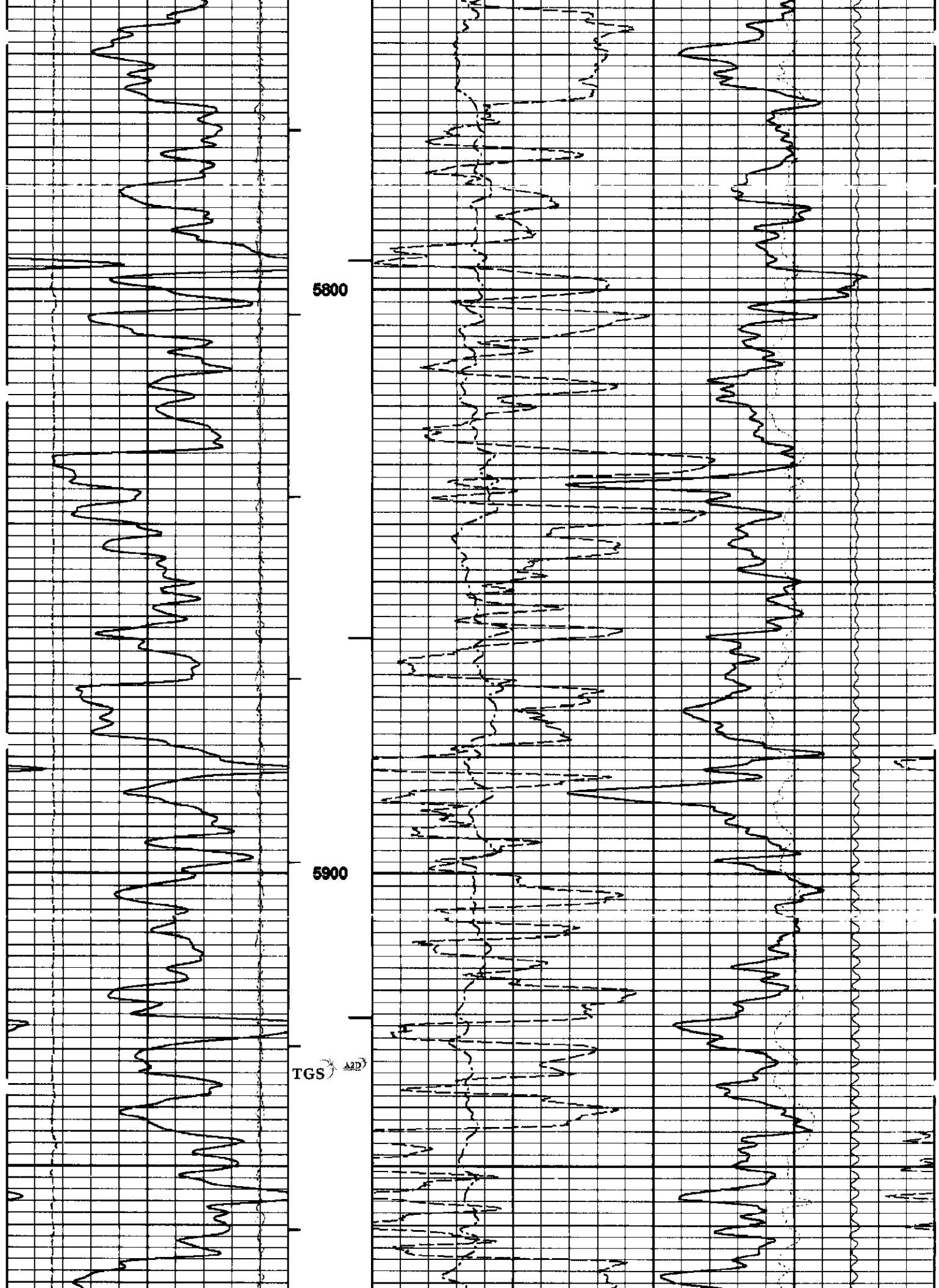
Plot Time: 17-Jun-10 21:45:55
 Plot Range: 5700 ft to 6054.92 ft
 Data: PETRO_UTE_20_11\Well Based\RPT\
 Plot File: \PORU_PORSIN_R

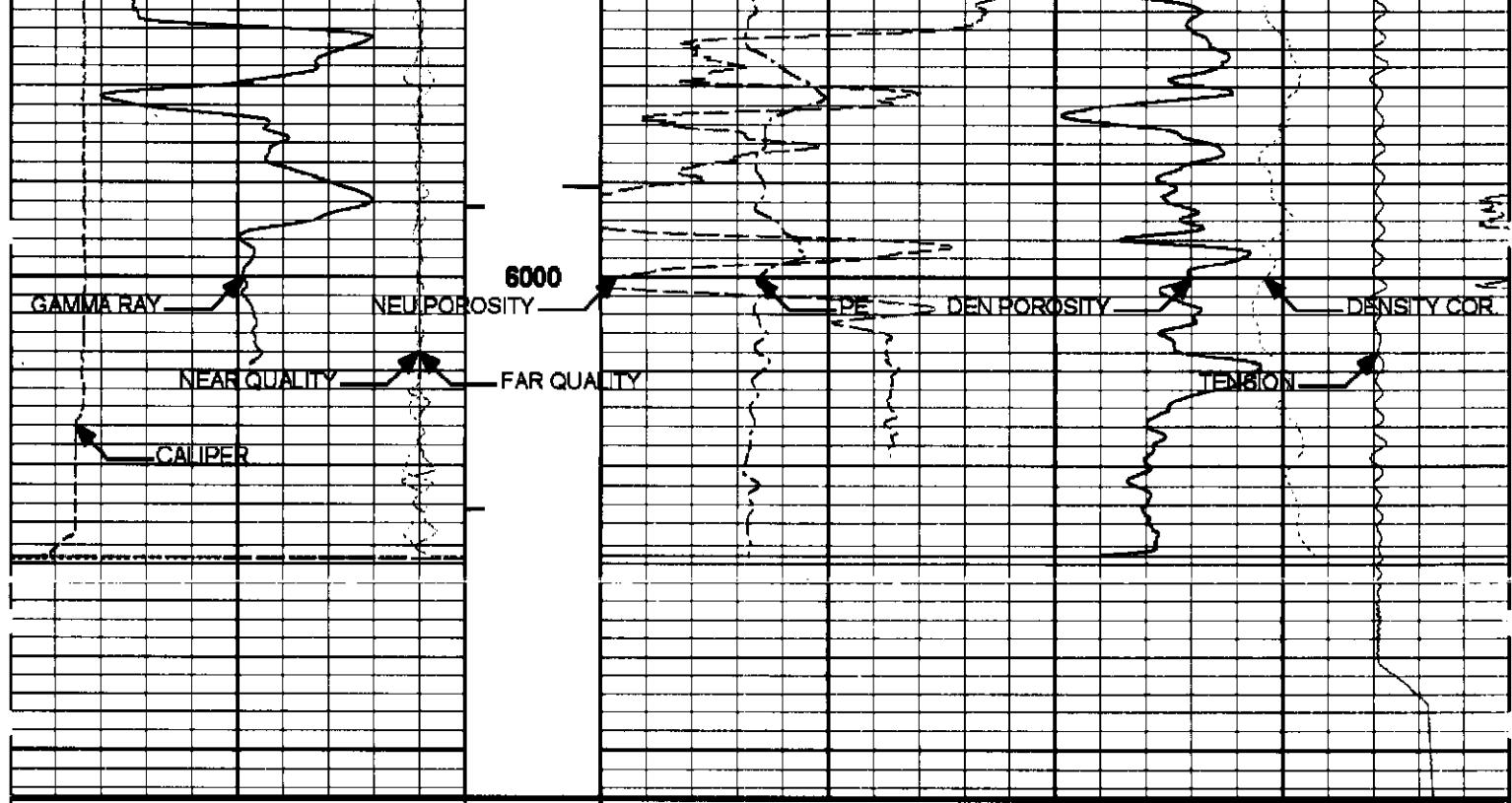
REPEAT SECTION 5" = 100'

0	GAMMA RAY	200	AHV BHV	30				DEN POROSITY	-10
	api							2.68	
6	CALIPER	18		30				NEU POROSITY	-10
	inches							send	
-45	NEAR QUALITY	5						10000	TENSION
45	FAR QUALITY	-5	1 : 240 FT.	0	PE	10	-0.25	0	pounds

0700







46	FAR QUALITY	-5	1 : 240 FT. BHV AHV	0	PE	10	-0.25	DENSITY COR.	0.25
-45	NEAR QUALITY	5					10000	TENSION	0
8	CALIPER	18		30				pounds	
0	GAMMA RAY	200		30			DEN POROSITY		-10
	api						2.68		

HALLIBURTON

Plot Time: 17-Jun-10 21:45:55
 Plot Range: 5700 ft to 6054.92 ft
 Data: PETRO_UYE_20_11\Well Based\RPT\
 Plot File: \POR\POR5IN_R

REPEAT SECTION 5" = 100'

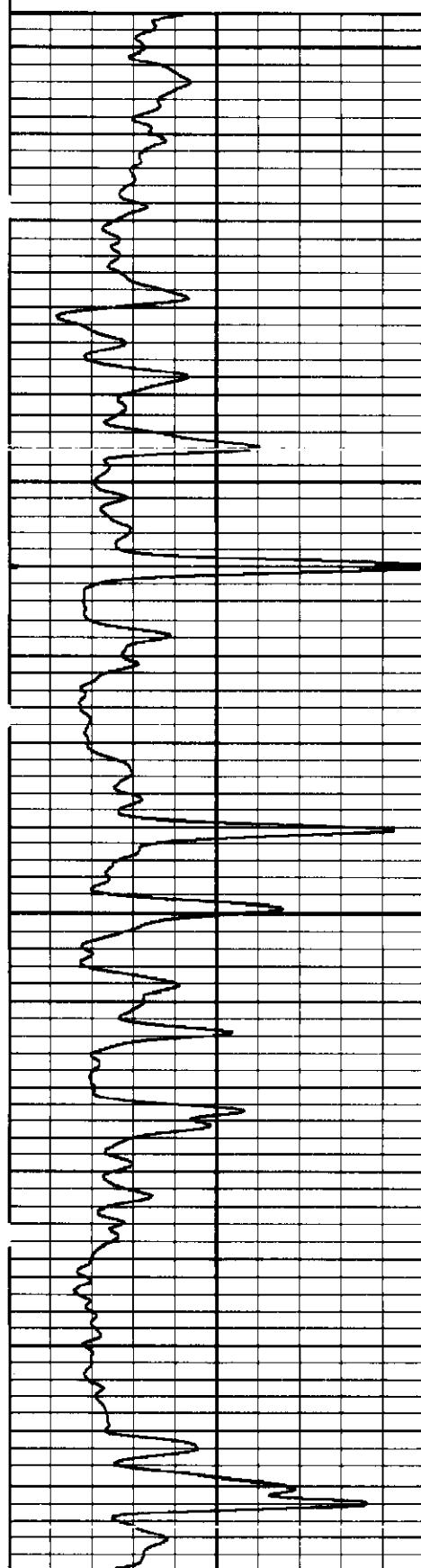
HALLIBURTON

Plot Time: 17-Jun-10 21:45:56
 Plot Range: 96 ft to 6051.92 ft
 Data: PETRO_UYE_20_11\Well Based\MAIN\
 Plot File: \RHO\RHOB_M

MAIN PASS 5" = 100'

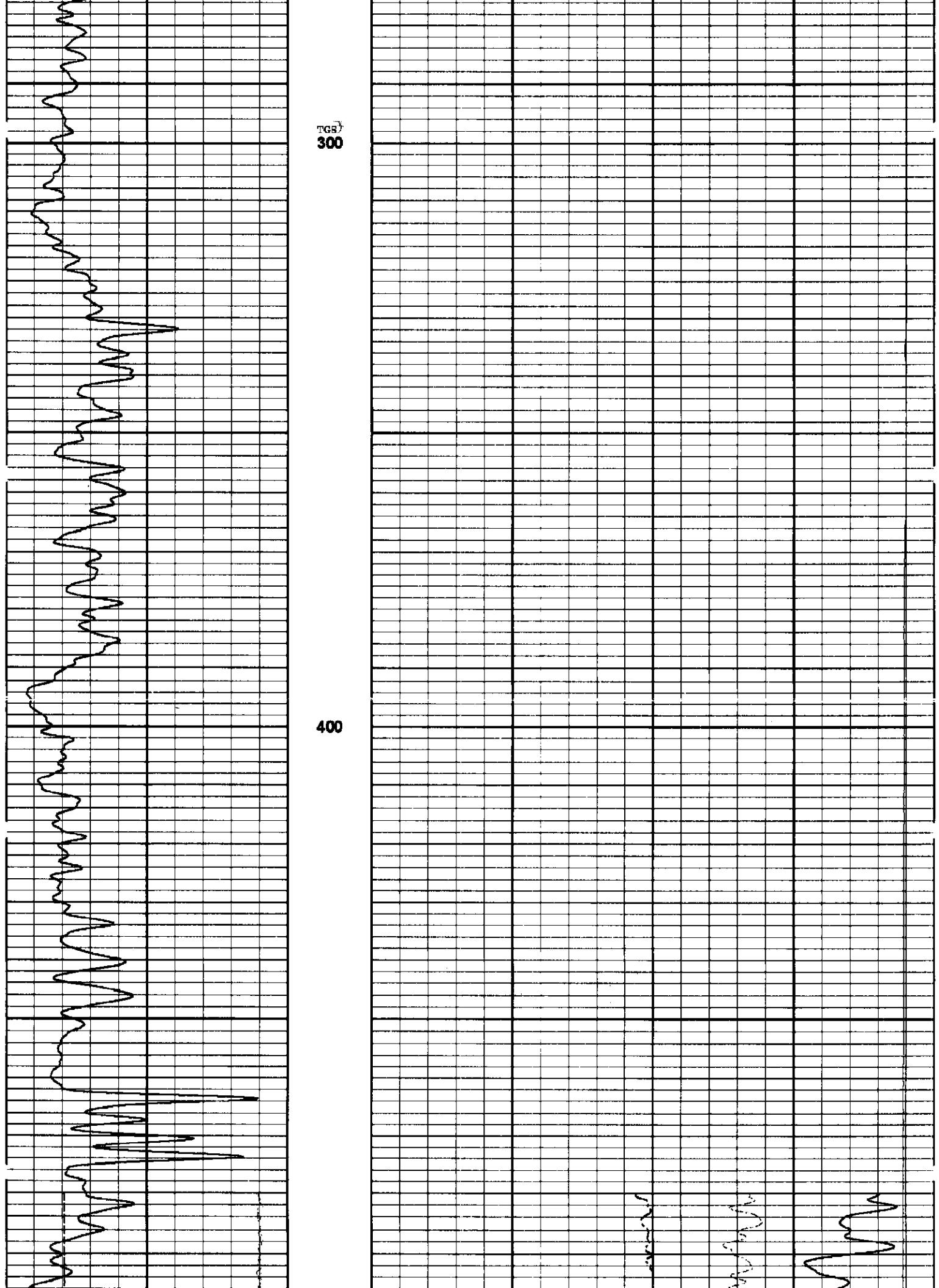
2	BULK DENSITY	3
	g/cc	

0	GAMMA RAY	200		-0.25	DENSITY COR.	0.25
	api				g/cc	
6	CALIPER	16		-0.25	DensityCorrPos	0.25
	Inches				g/cc	
-45	NEAR QUALITY	5		-0.25	DensityCorrNeg	0.25
					g/cc	
45	FAR QUALITY	-5	1 : 240	0	TENSION	0
			FT.	PE	10000	pounds



100

200



GAMMA RAY

500

CSG

TRIGGER

FAR QUALITY

NEAR QUANTITY

PE

DENSITY COR.

TENSION

600

BULK DENSITY

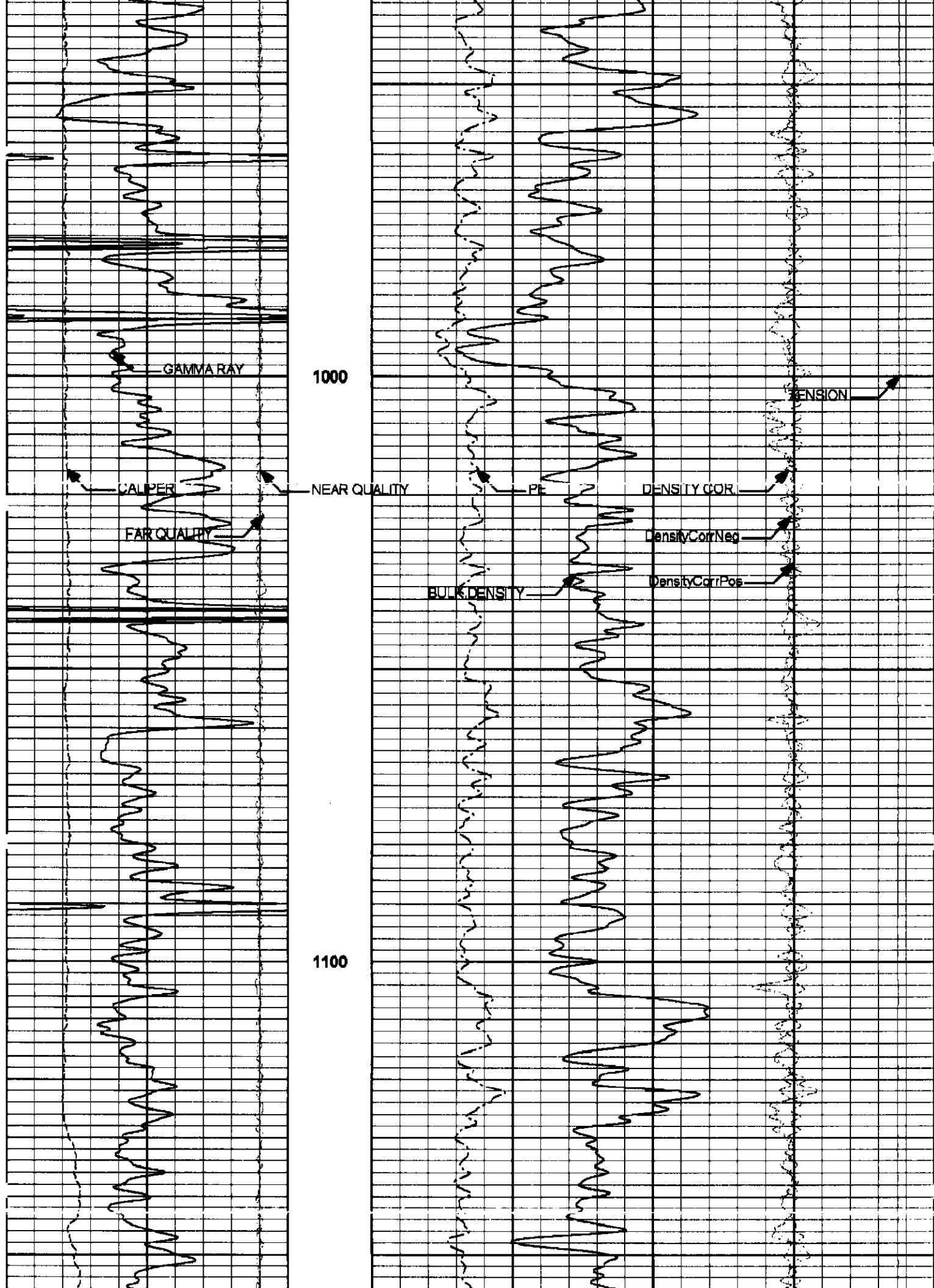
DensityCorrNeg

DensityCorrPos

700

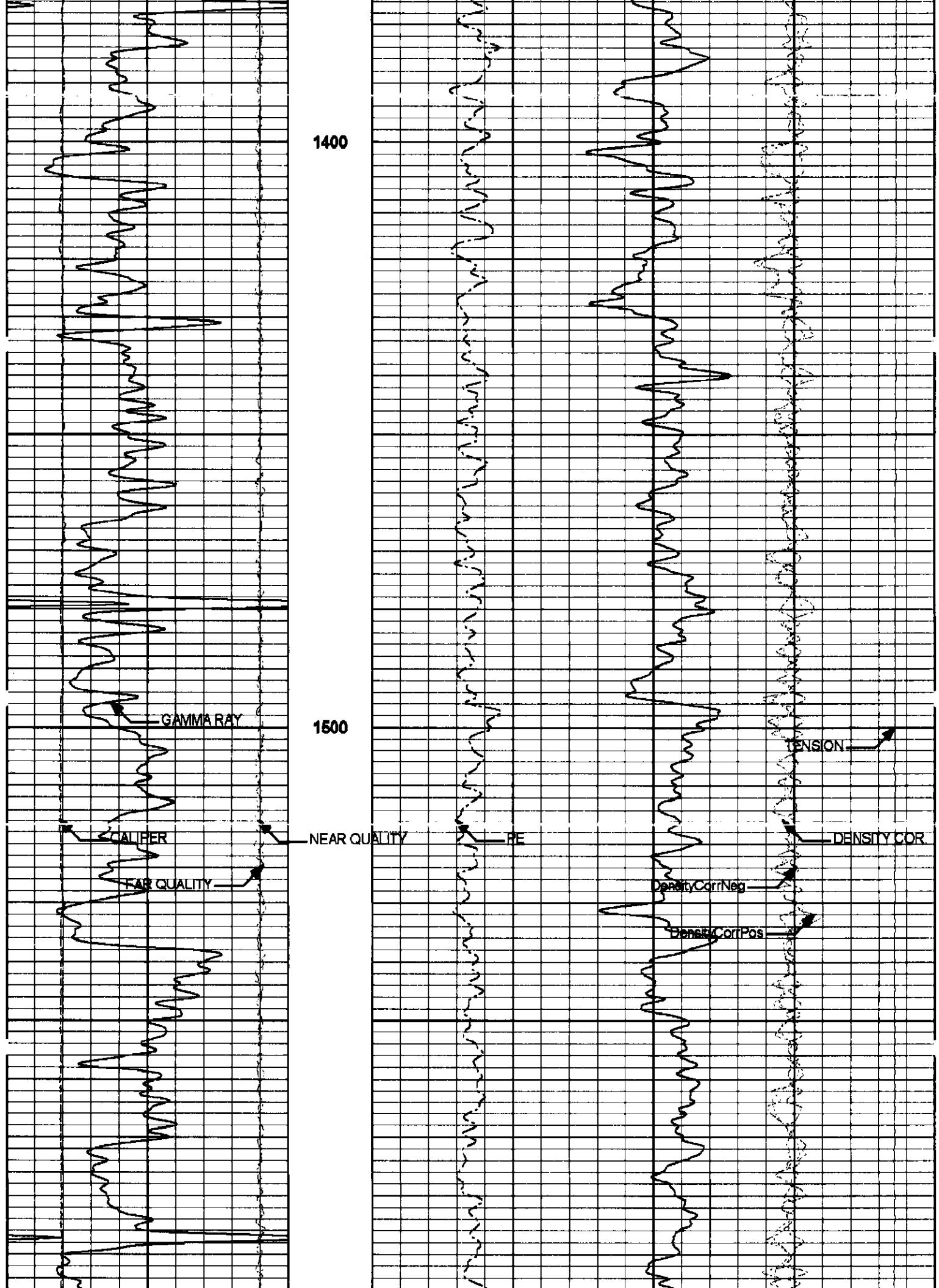
TGB
800

900



1200

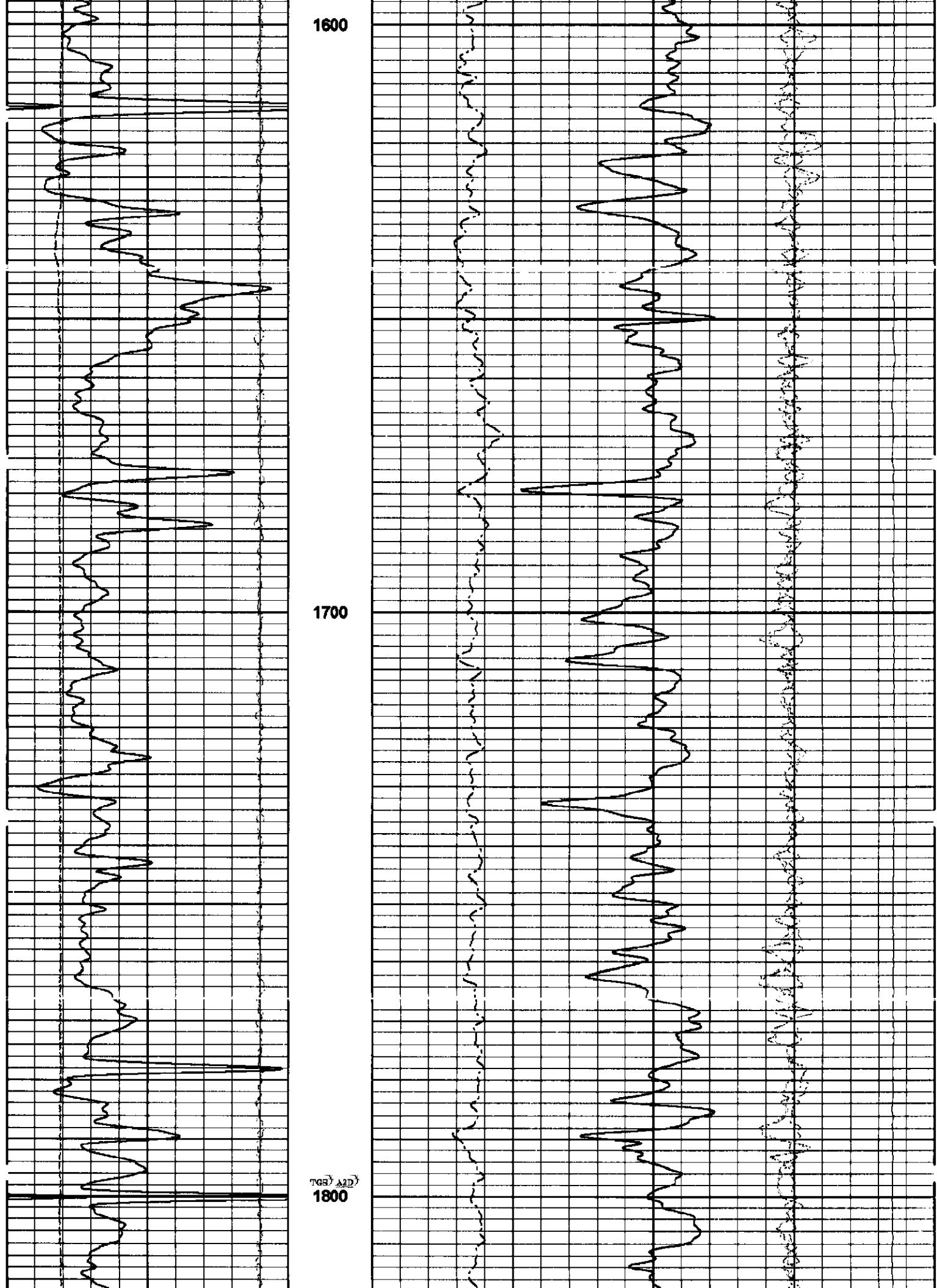
TGB⁷ A2D⁷
1300

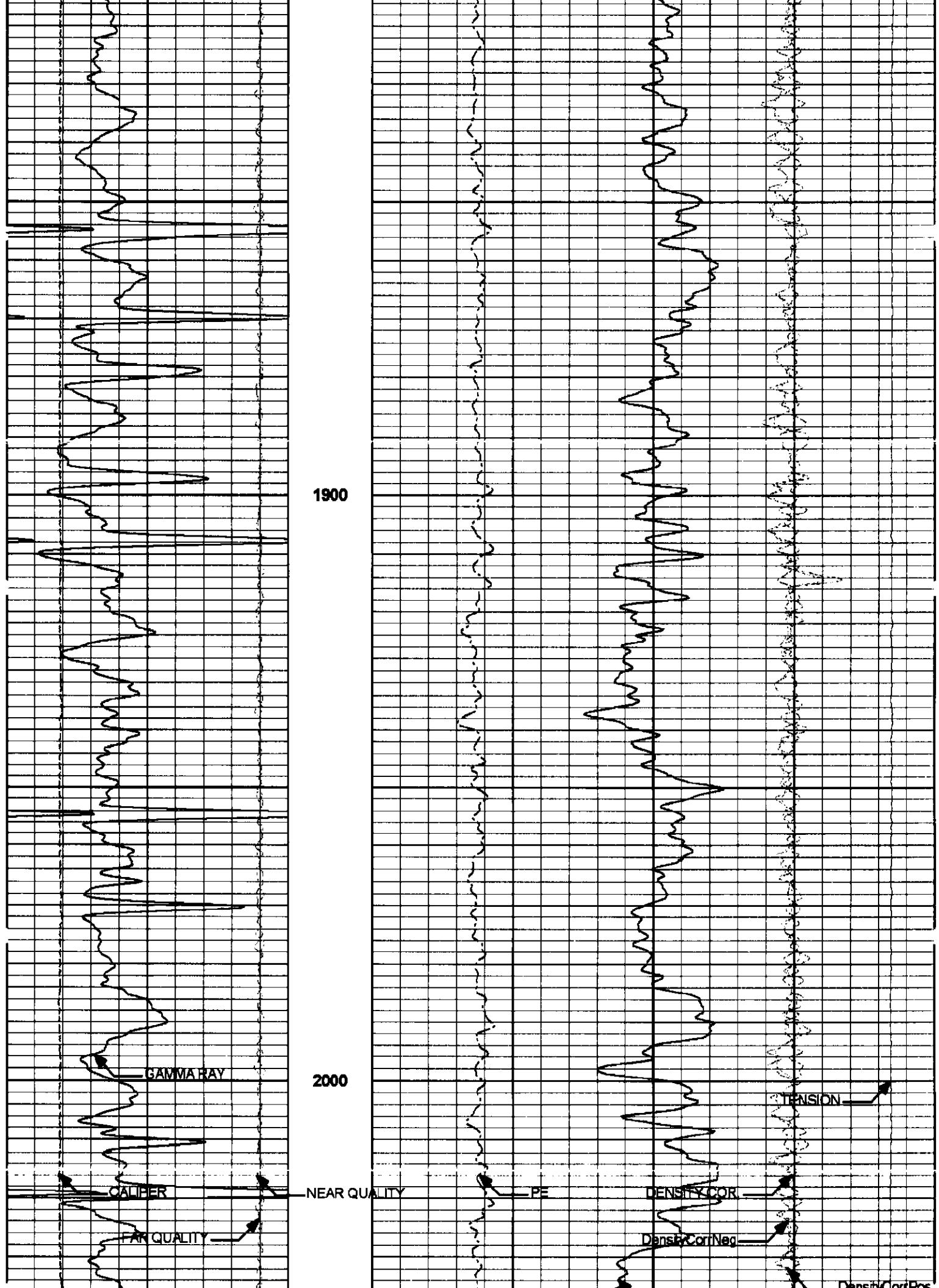


1600

1700

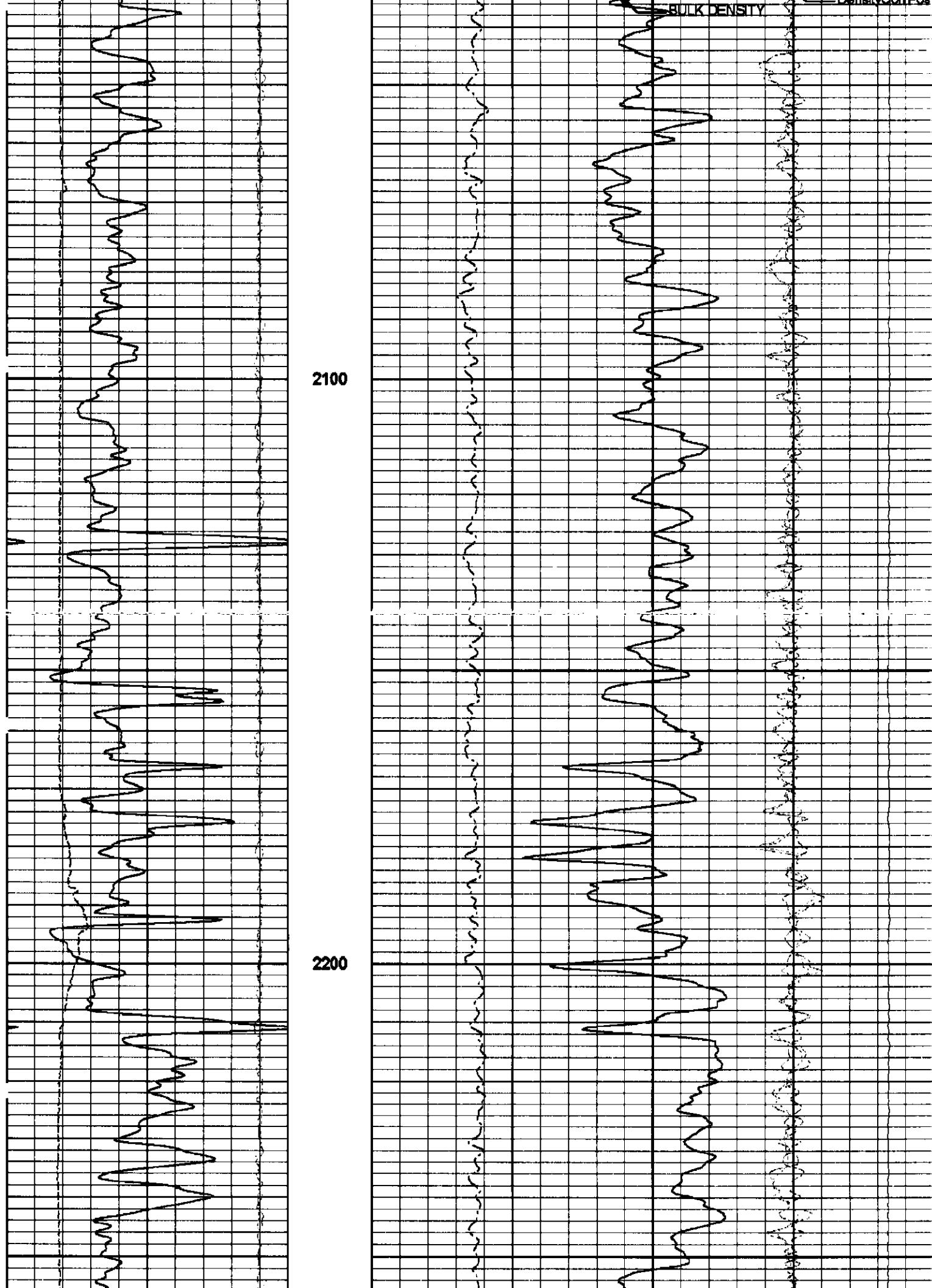
TGS A2D
1800





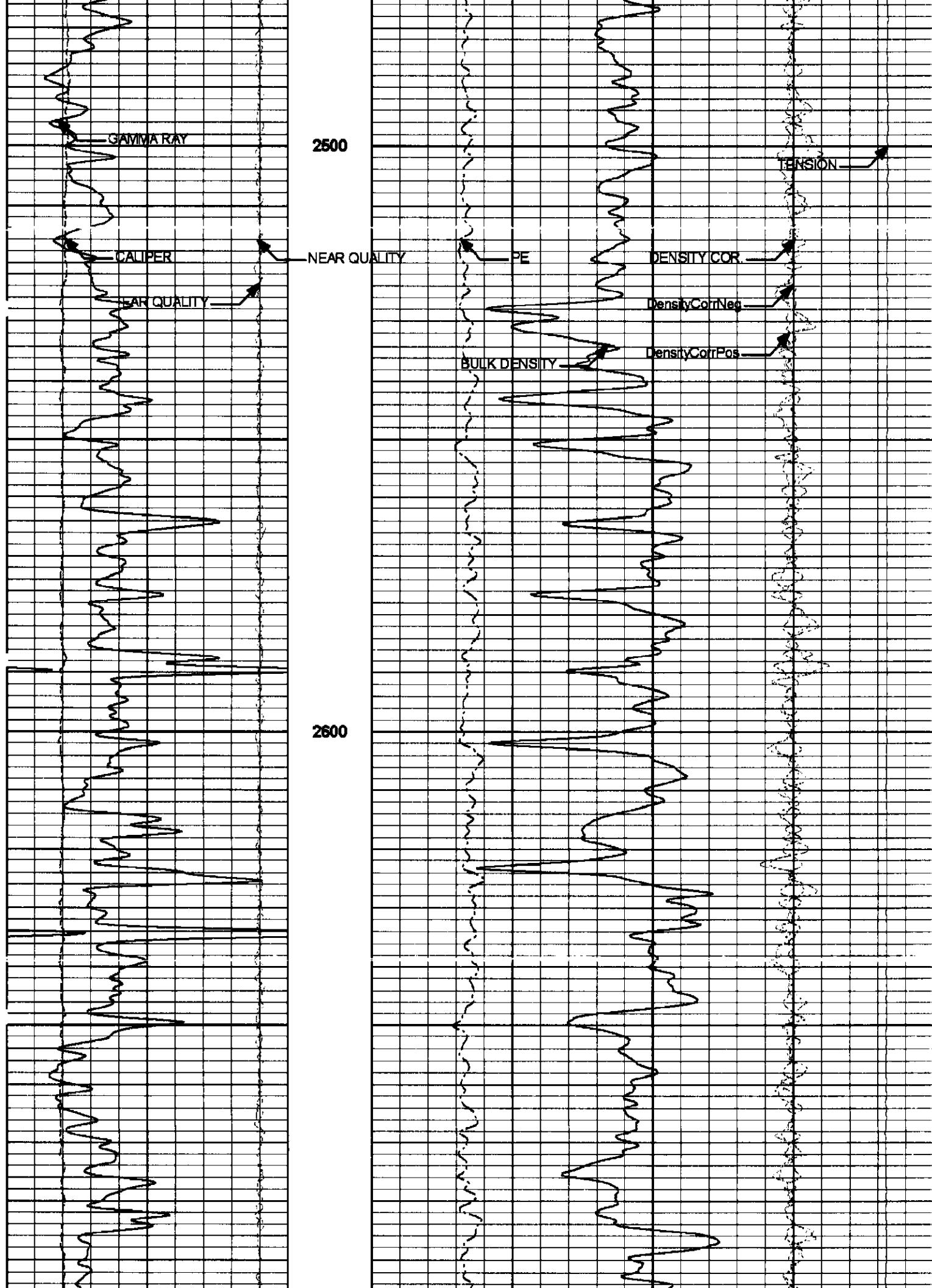
2100

2200



TGS
2300

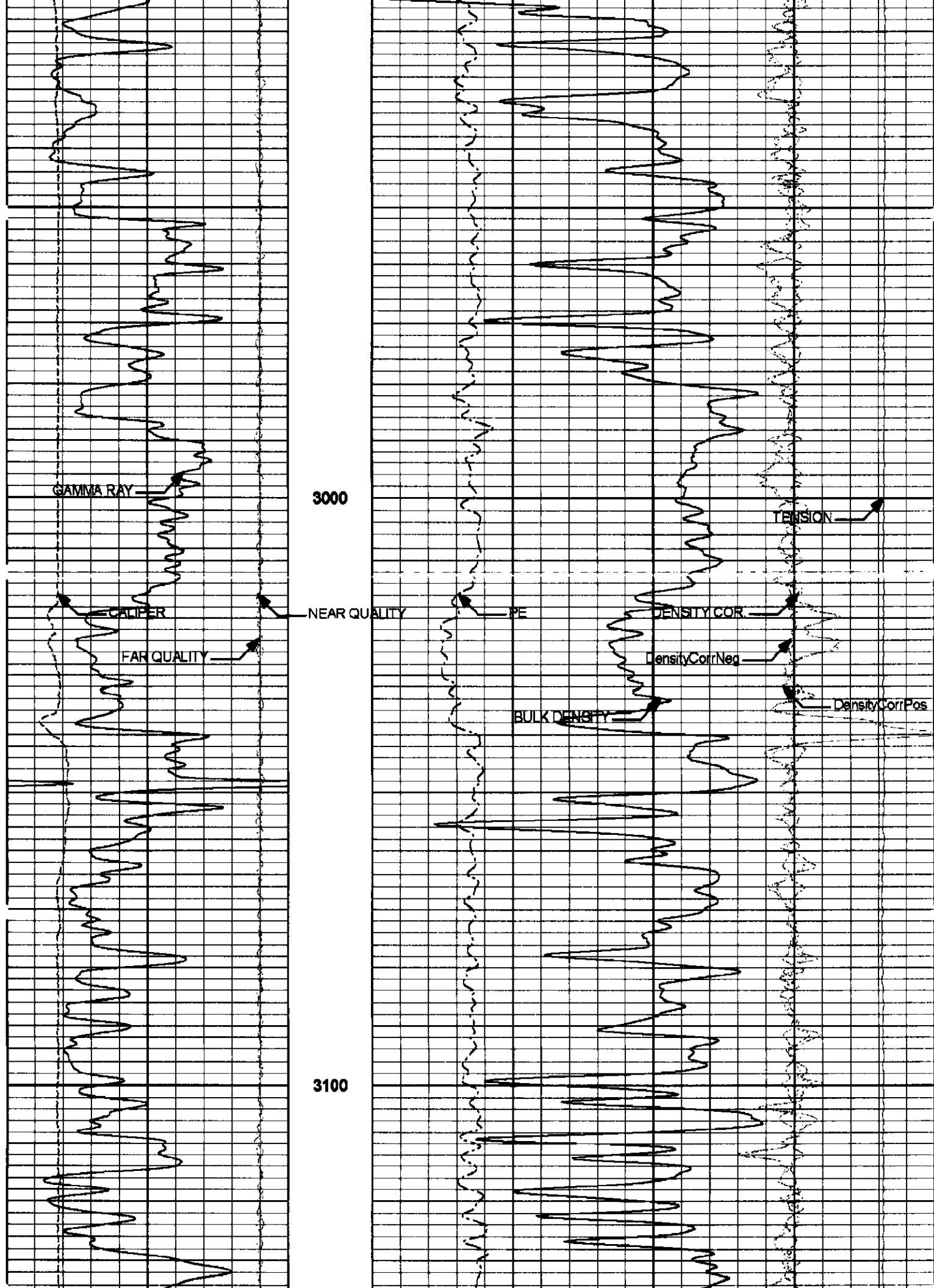
2400



2700

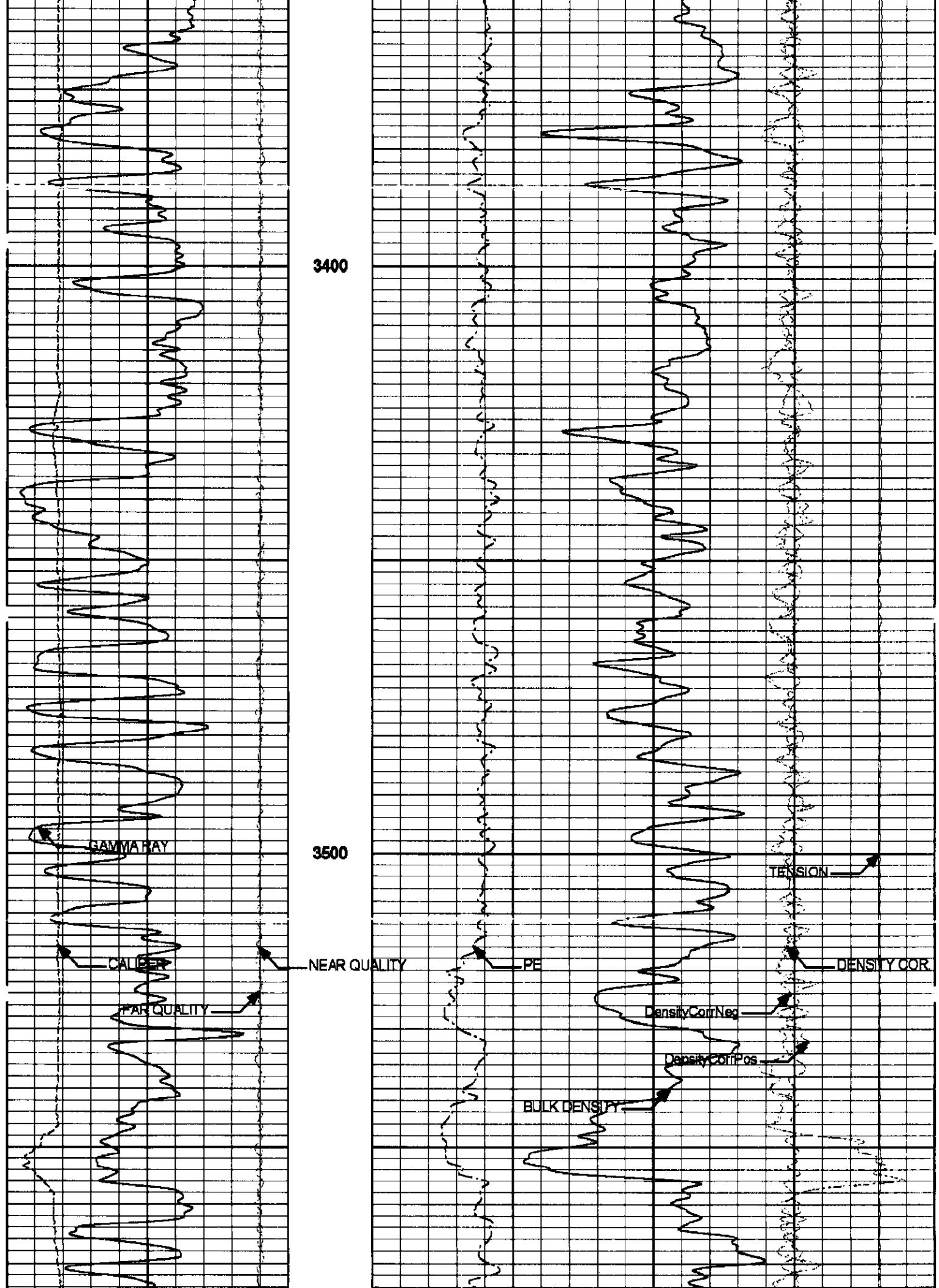
TGS
2800

2900



3200

TGS
3300



3600

3700

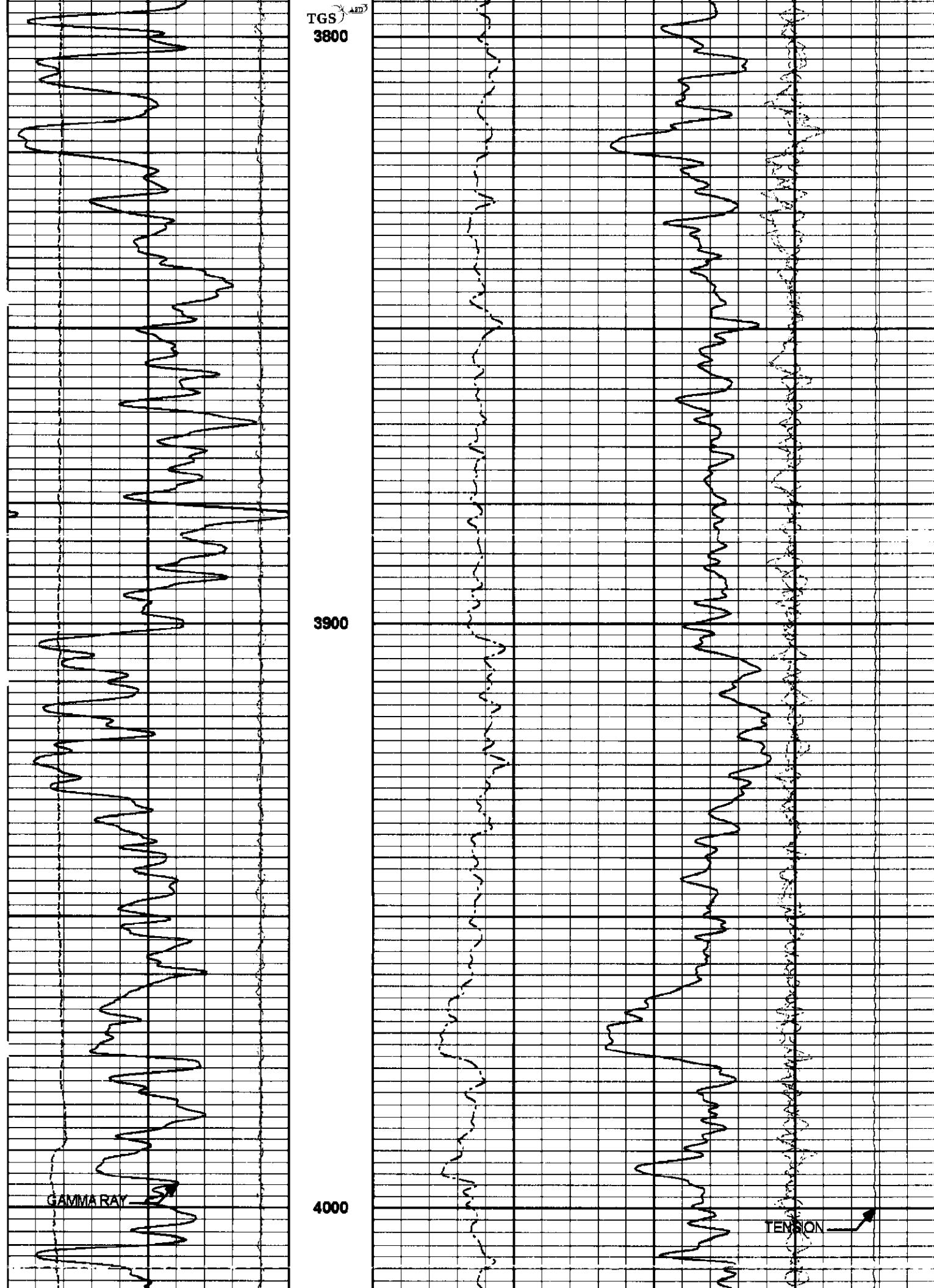
TGS ADD
3800

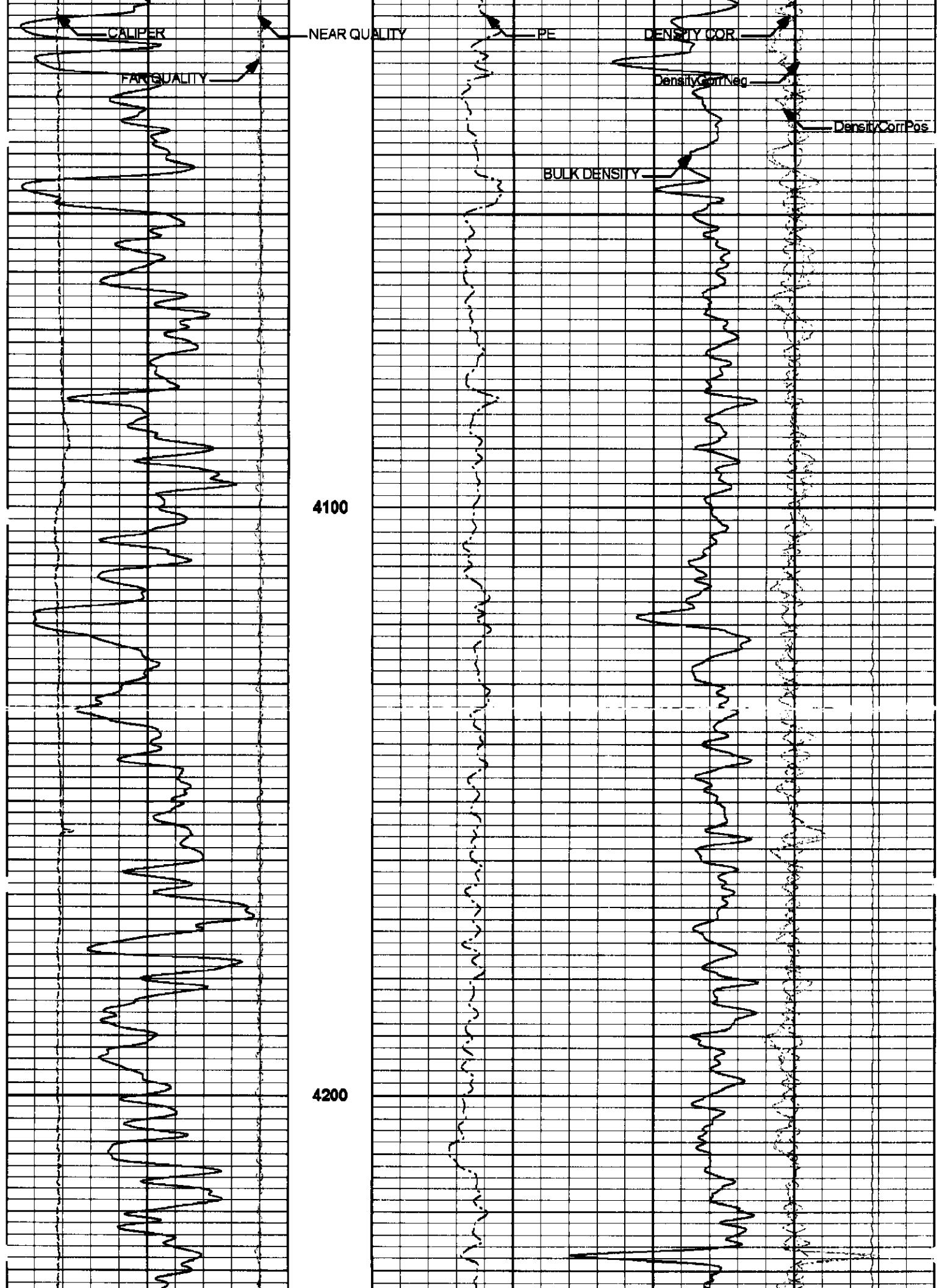
3900

4000

GAMMA RAY

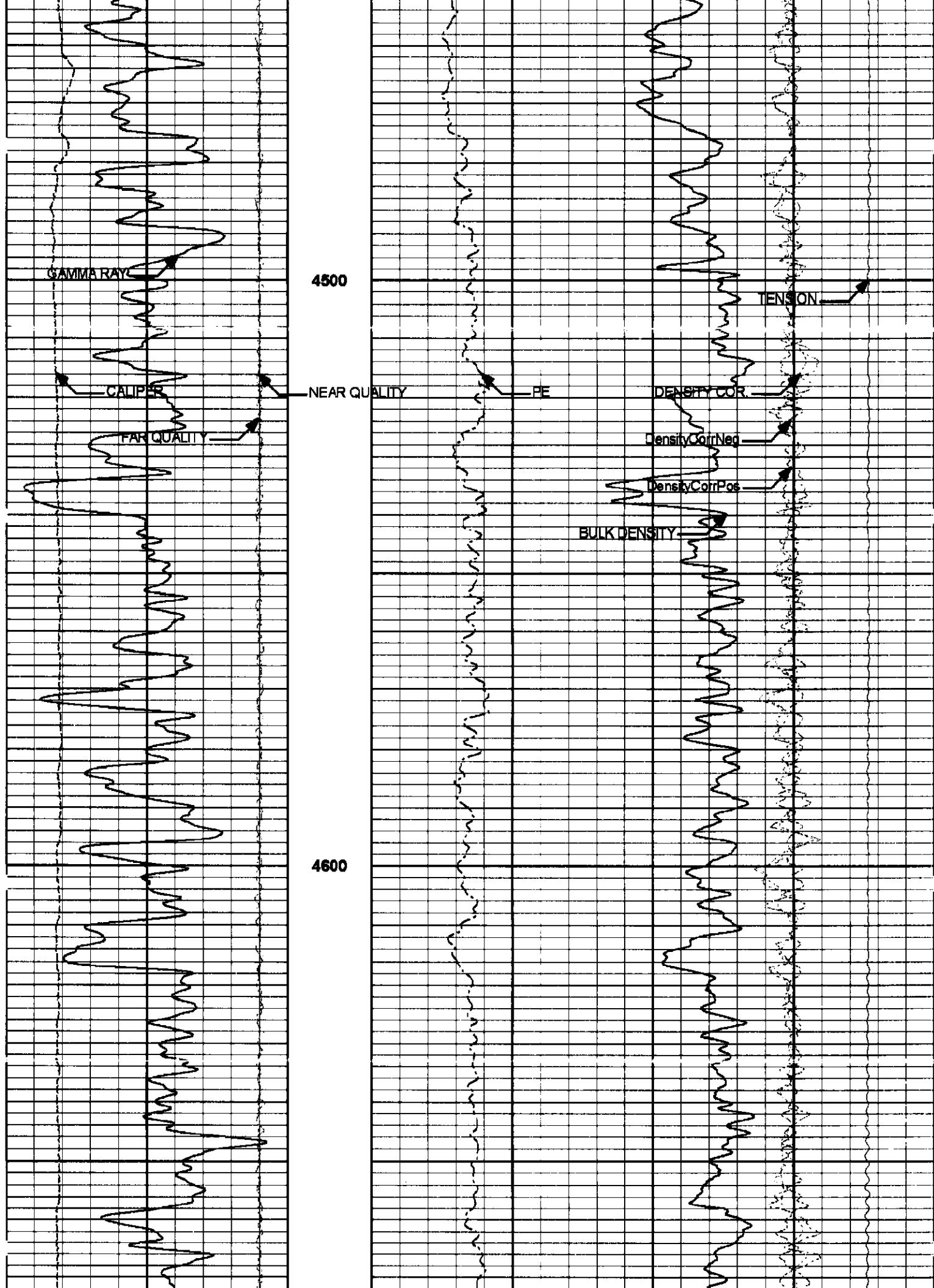
TENSION





TGS ^{MD}
4300

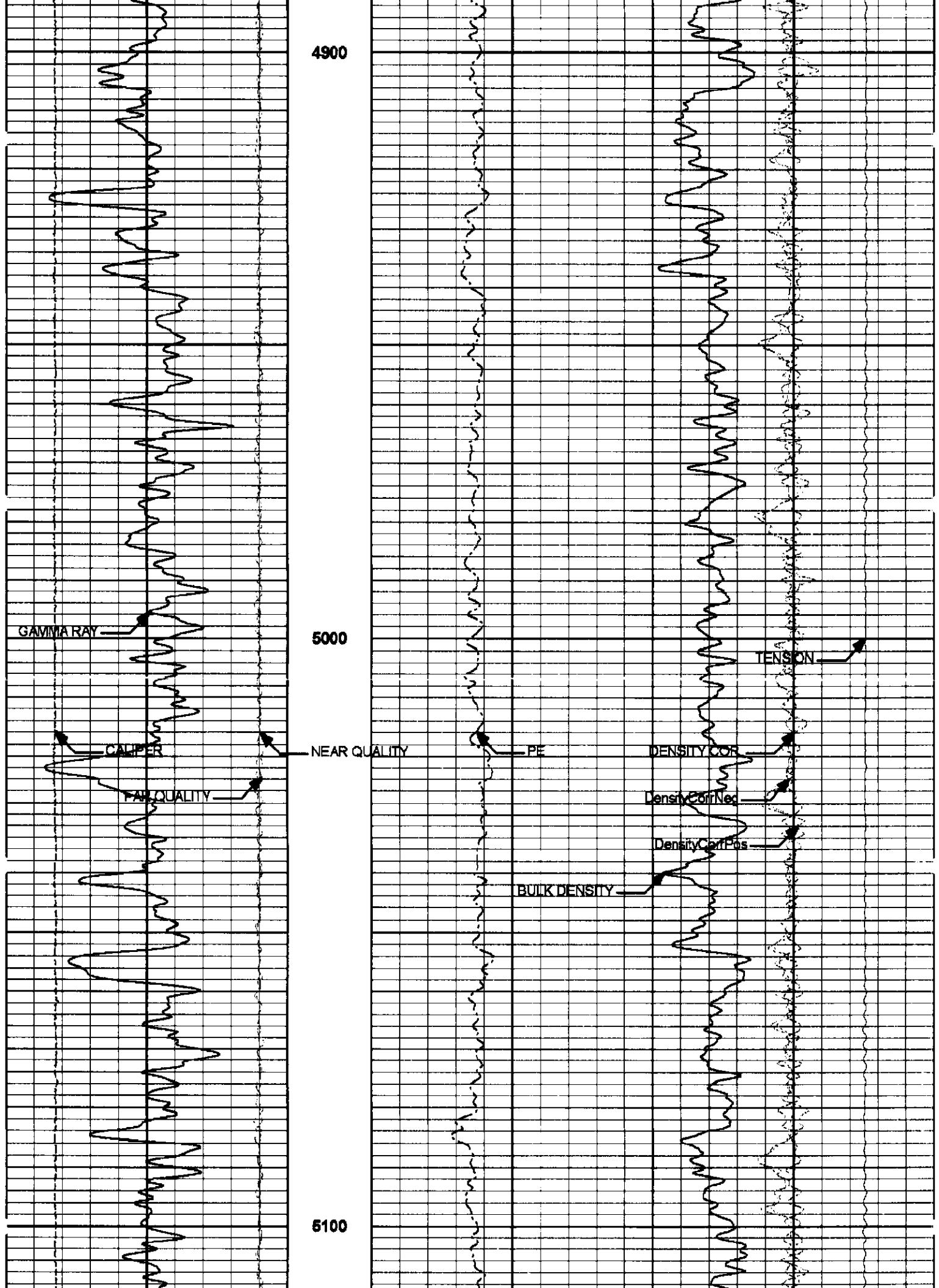
4400

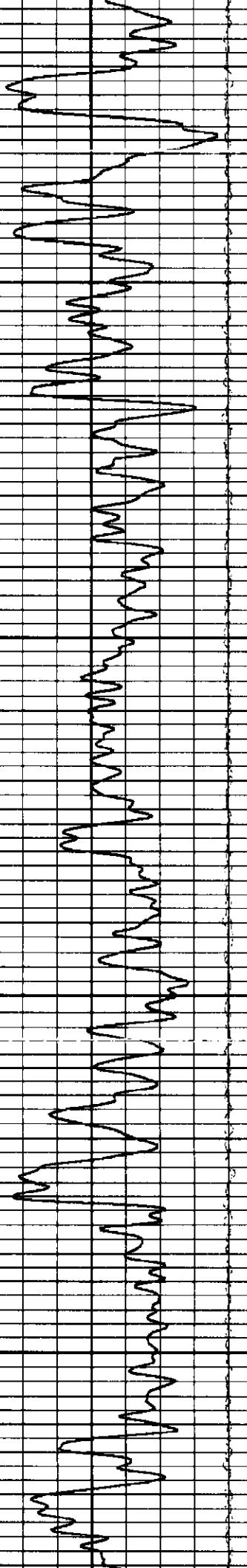


4700

TGS ^{MD}

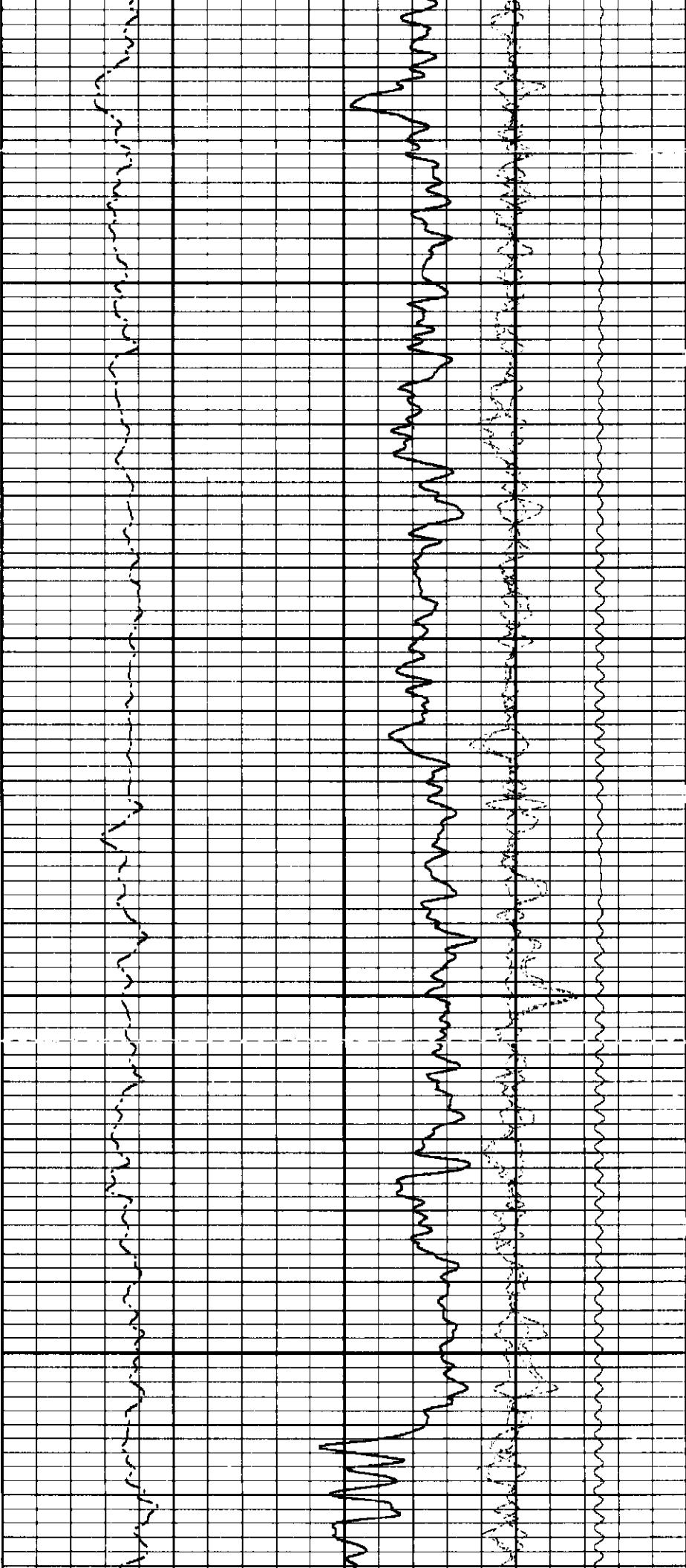
4800





5200

TGS ^{MD}
5300



SAMMA RAY

CALIPER

FAR QUALITY

5500

NEAR QUALITY

PE

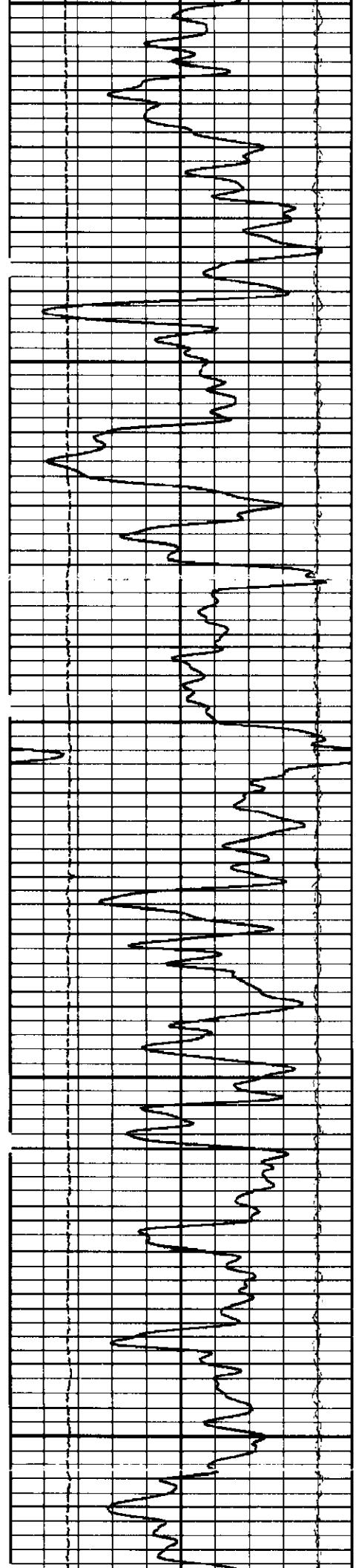
DENSITY COR

DensityCorrNeg

DensityCorrPos

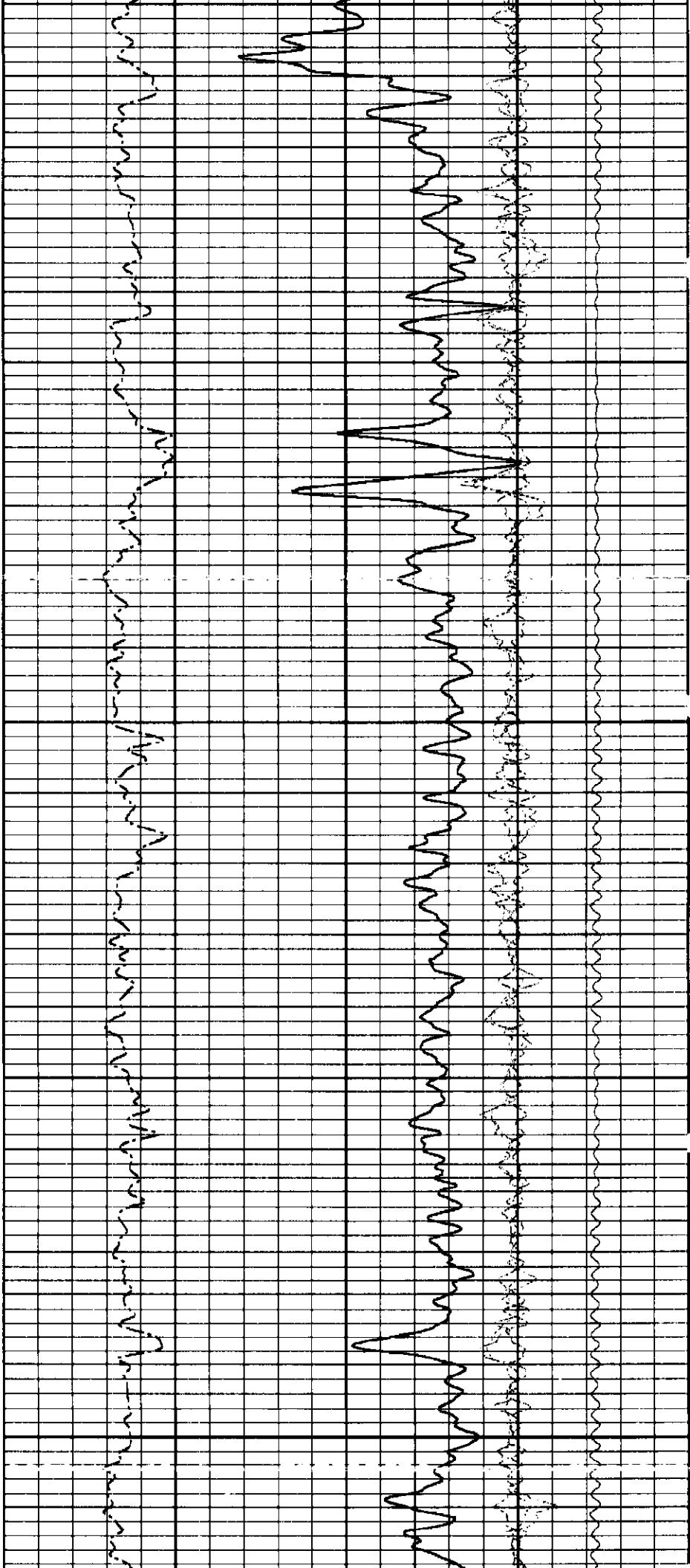
BULK DENSITY

TENSION



5600

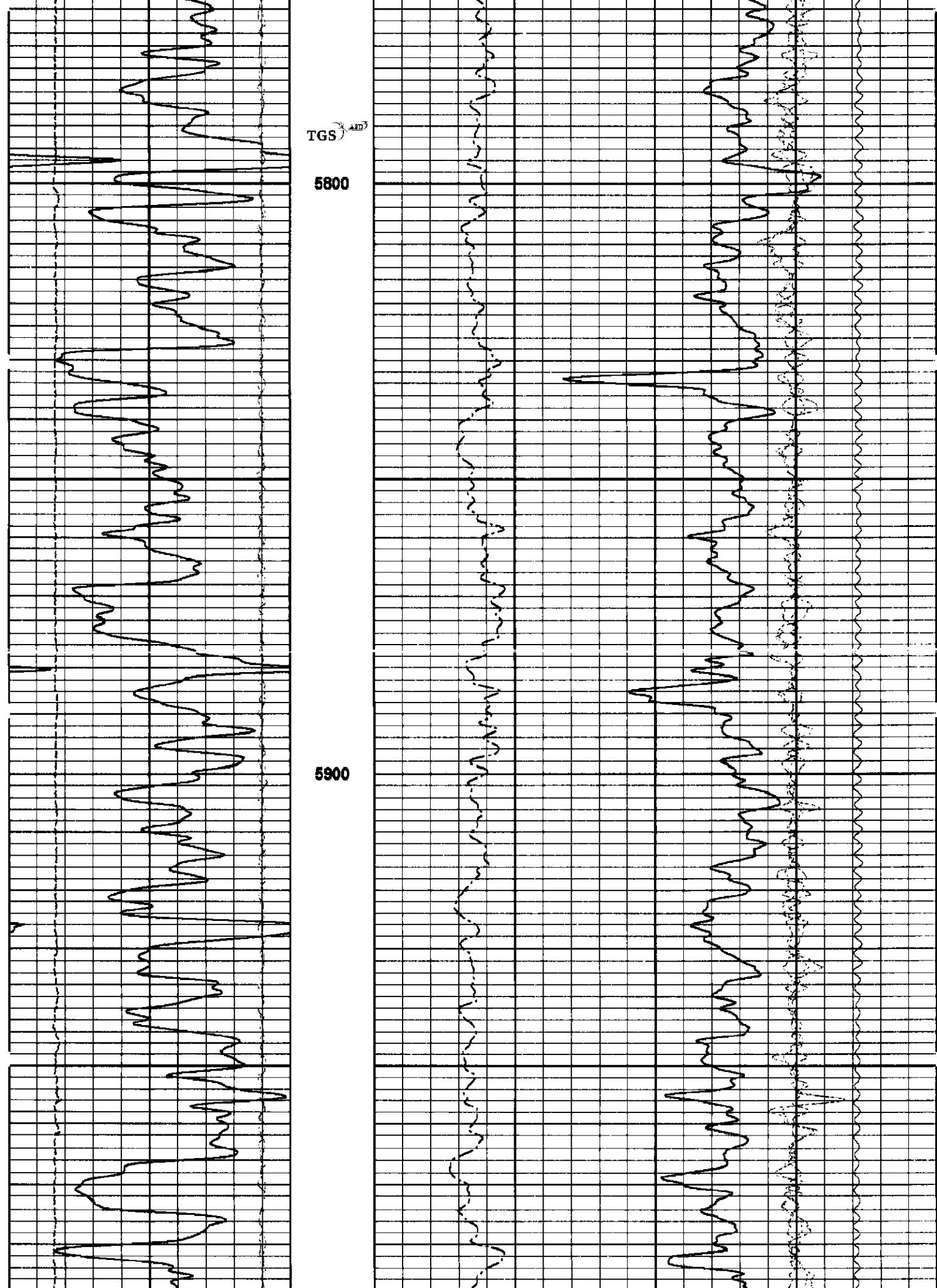
5700

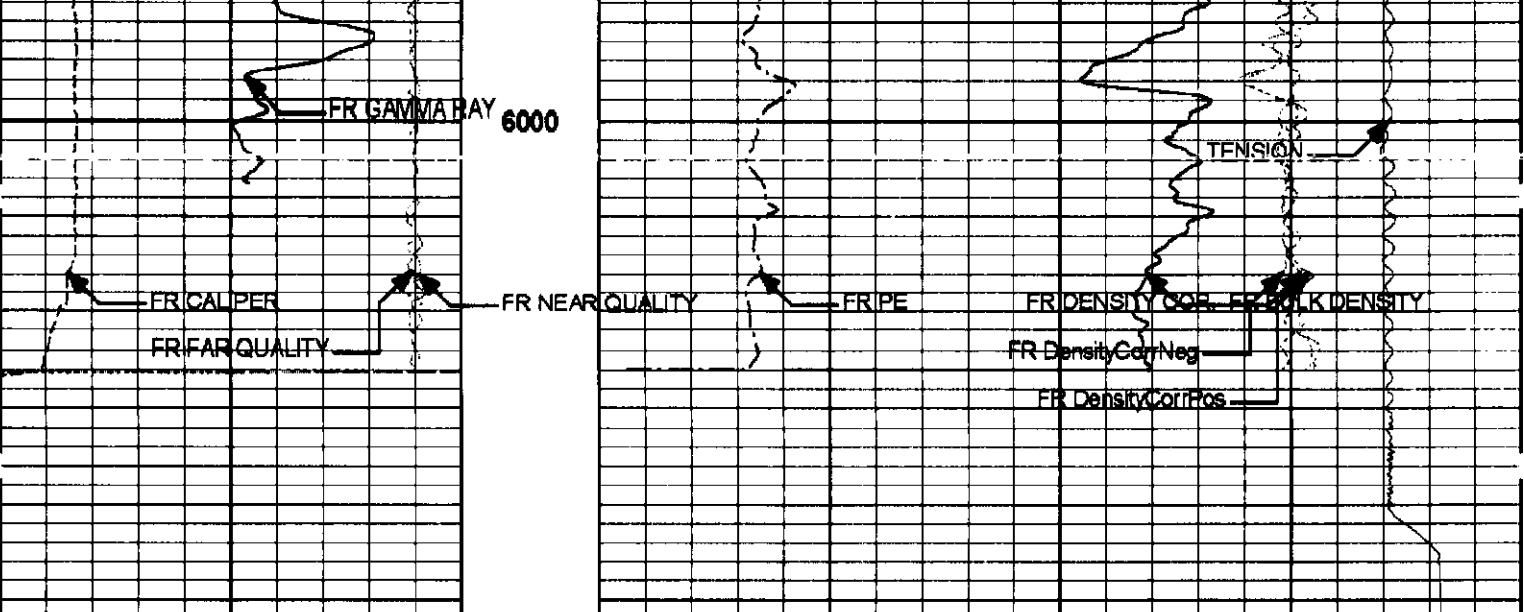


TGS ADD³

5800

5900





45	FAR QUALITY	-5	1 : 240 FT.	0	PE	10	10000	TENSION	0
-45	NEAR QUALITY	5						pounds	
6	CALIPER	16					-0.25	DensityCorrNeg	0.25
	inches							g/cc	
0	GAMMA RAY	200					-0.25	DensityCorrPos	0.25
	api							g/cc	
				2			-0.25	DENSITY COR.	0.25
								g/cc	
								BULK DENSITY	3
								g/cc	

HALLIBURTON

Plot Time: 17-Jun-10 21:48:00
 Plot Range: 96 ft to 6051.92 ft
 Data: PETRO_UTE_20_11\Well Based\MAIN\
 Plot File: \\PORU_RHOB_M

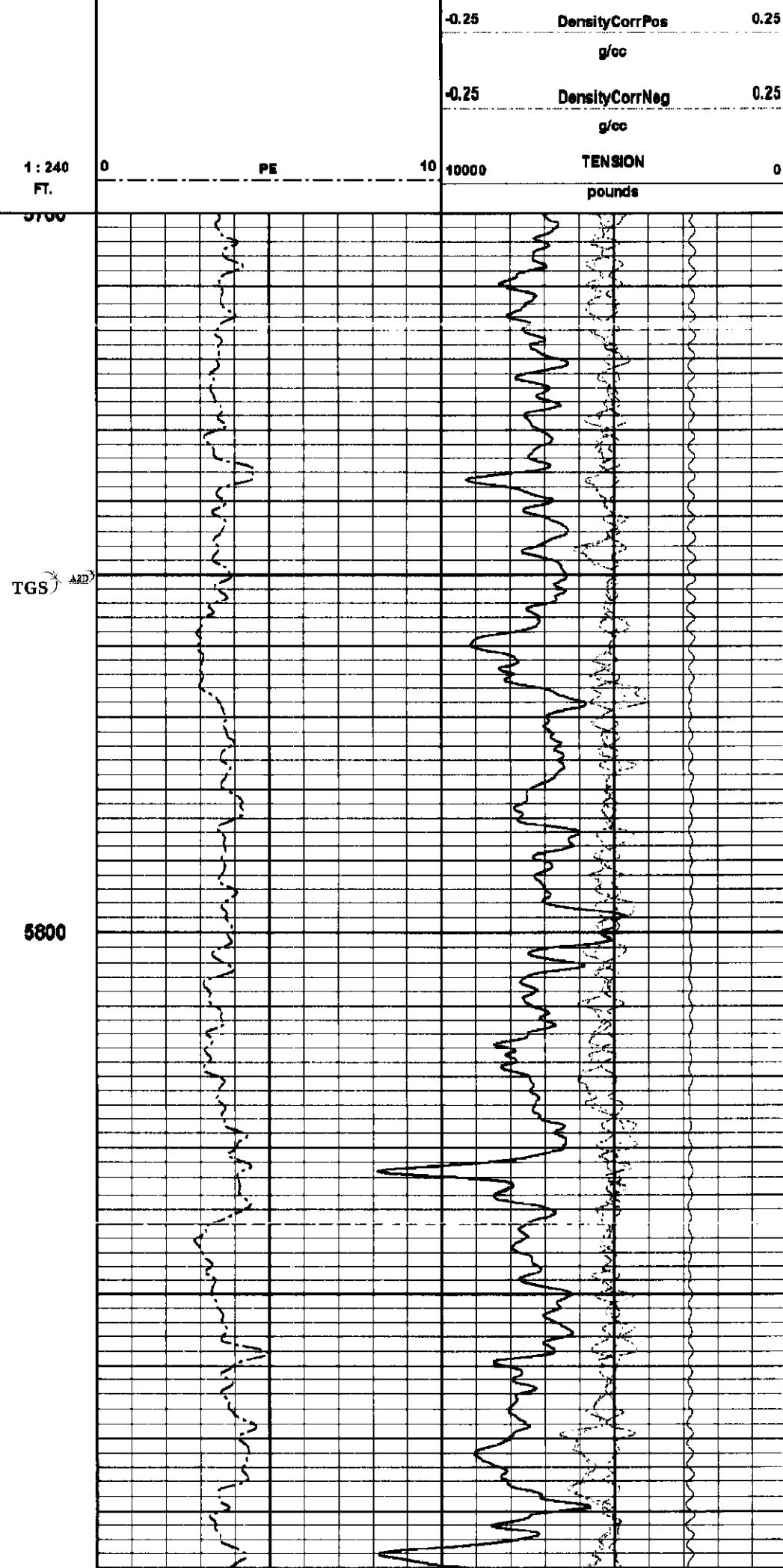
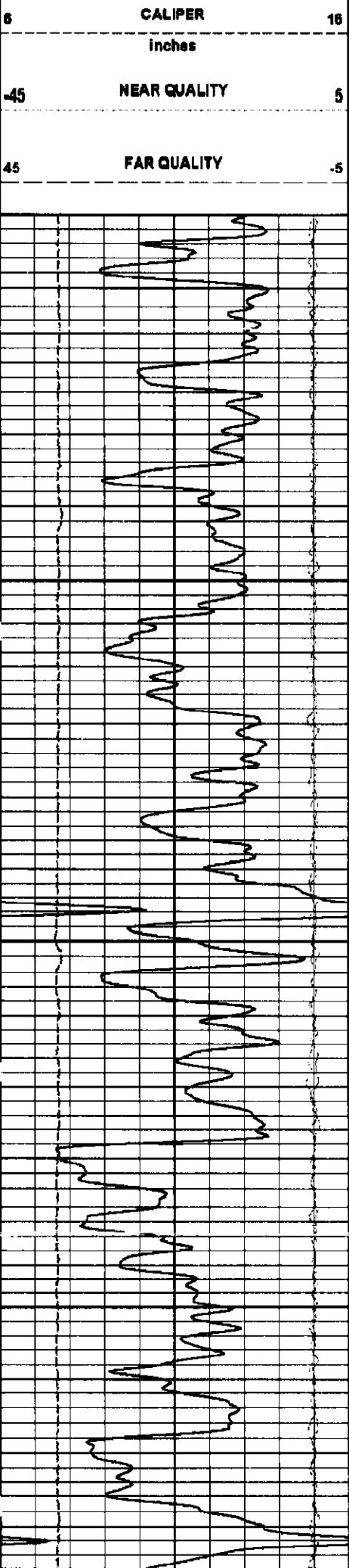
MAIN PASS 5" = 100'

HALLIBURTON

Plot Time: 17-Jun-10 21:48:00
 Plot Range: 5700 ft to 6054.92 ft
 Data: PETRO_UTE_20_11\Well Based\RPT\
 Plot File: \\PORU_RHOB_R

REPEAT SECTION 5" = 100'

0	GAMMA RAY	200		2	BULK DENSITY	3
					g/cc	
				-0.25	DENSITY COR.	0.25
	api				g/cc	



5900

6000

GAMMA RAY
CALIPER

NEAR QUALITY
FAR QUALITY

PE BULK DENSITY DENSITY COR.

TENSION

FR DensityCorrNeg
FR DensityCorrPos

45	FAR QUALITY	-5	1 : 240 FT.	0	PE	10	10000	TENSION	0
-45	NEAR QUALITY	5						pounds	
6	CALIPER	16					-0.25	DensityCorrNeg	0.25
	Inches							g/cc	
0	GAMMA RAY	200					-0.25	DensityCorrPos	0.25
	api							g/cc	
				2			-0.25	DENSITY COR.	0.25
								g/cc	
								BULK DENSITY	3
								g/cc	

REPEAT SECTION 5" = 100"**HALLIBURTON****CALIBRATION REPORT****NATURAL GAMMA RAY TOOL SHOP CALIBRATION**

Tool Name:	GTET - 11277435	Reference Calibration Date:	14-Apr-10 14:54:05
Engineer:	K. NORMAND	Calibration Date:	15-May-10 15:49:23
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Calibrator Source S/N: TB-271

Calibrator API Reference: 236.00 api

Measurement	Measured	Calibrated	Units
Background	33.2	33.1	api
Background + Calibrator	270.4	269.1	api
Calibrator	235.8	236.0	api

ACCELEROMETER SHOP CALIBRATION

Tool Name:	GTET - 11277435	Reference Calibration Date:	14-Apr-10 15:00:20
Engineer:	M. LECUREUX	Calibration Date:	15-May-10 10:30:05
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-444.18	-265.73	-16375.91	cnts



Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	0.0100 - -0.0100
Offset	-0.022	-----
Noise	0.0007	0.0030

Orientation	Measured	Calibrated
Horizontal	0.01	0.00
Vertical	0.99	1.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 10613623	Reference Calibration Date:	14-Apr-10 10:18:05
Engineer:	M. LECUREUX	Calibration Date:	15-May-10 11:52:47
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Logging Source S/N: 21480B

Tank Serial Number: 105045

Reference value assigned to Tank: 52.630

Snow Block S/N: BOND_SB

Calibration Tank Water Temperature: 67 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.978	0.980	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2158	0.2163	0.0005	+/- 0.0020
Calibrated Ratio:	9.89	9.91	0.015	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0631	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSNT - 10813523	Reference Calibration Date:	18-May-10 11:52:47
Engineer:	G. ALLEN	Calibration Date:	17-Jun-10 09:55:06
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Logging Source S/N: 21480B

Snow Block S/N: BOND_SB

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0631	0.0655	0.0024	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Show Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	SDLT - 10895353	Reference Calibration Date:	14-Apr-10 08:55:15
Engineer:	M. LECUREUX	Calibration Date:	18-May-10 11:13:18
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

Logging Source S/N: 5246GW

Aluminum Block S/N: 8261

Density: 2.602g/cc

Pe: 3.182

Magnesium Block S/N: 8260

Density: 1.688g/cc

Pe: 2.594

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0246	1.0295	0.90 - 1.10
Near Dens Gain	1.0072	1.0059	0.90 - 1.10
Near Peak Gain	1.0076	1.0232	0.90 - 1.10
Near Lith Gain	0.9835	1.0128	0.90 - 1.10
Far Bar Gain	1.0088	1.0077	0.90 - 1.10

Far Dens. Gain	1.0048	1.0022	0.90 - 1.10
Far Peak Gain	1.0012	0.9982	0.90 - 1.10
Far Lith Gain	0.9857	0.9828	0.80 - 1.10
Near Bar Offset	-0.2902	-0.3308	NONE
Near Dens Offset	-0.1534	-0.1387	NONE
Near Peak Offset	-0.1687	-0.2980	NONE
Near Lith Offset	-0.0762	-0.2349	NONE
Far Bar Offset	-0.1445	-0.1318	NONE
Far Dens Offset	-0.1206	-0.0866	NONE
Far Peak Offset	-0.1293	-0.1062	NONE
Far Lith Offset	-0.0419	-0.0249	NONE
Near Bar Background	906.62	907.28	700 - 1450
Near Dens Background	300.41	298.42	230 - 480
Near Peak Background	130.48	130.03	100 - 210
Near Lith Background	160.39	159.99	125 - 260
Far Bar Background	466.75	465.50	450 - 900
Far Dens Background	184.25	186.57	175 - 345
Far Peak Background	73.58	73.08	70 - 140
Far Lith Background	76.05	75.34	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.688	0.006	+/- 0.015
Pe	2.632	2.594	-0.038	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.602	0.004	+/- 0.01500
Pe	3.189	3.182	-0.007	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0027	+/- 0.0110	-0.0035	+/- 0.0140
Magnesium Block	0.0003	+/- 0.0110	-0.0018	+/- 0.0140
Aluminum Block	-0.0002	+/- 0.0110	-0.0002	+/- 0.0140
Resolution	9.95	6.00 - 11.50	9.45	6.00 - 11.50
Internal Verifier(B+D+P+L)	1406	1200 2700	800	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

Tool Name: SDLT - 10895353

Reference Calibration Date: 18-May-10 11:13:16

Engineer: G. ALLEN

Calibration Date: 17-Jun-10 09:47:42

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Pad Temperature: 62.5 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1495.711	1489.564	-6.147	15.585
Far (B+D+P+L) cps	800.492	797.088	-3.404	15.670
Near Resolution	9.95	10.11	0.180	0.50
Far Resolution	9.45	9.55	0.100	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10895353

Reference Calibration Date: 14-Apr-10 09:28:34

Engineer: M. LECUREUX

Calibration Date: 18-May-10 11:26:57

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2466.86	-2018.32	-7000.00 - -1000.00
Pad Gain	0.0003855	0.0003814	0.000200 - 0.000600
Arm Offset	-3318.35	-3198.51	-5000.00 - 3000.00
Arm Gain	0.0005775	0.0005553	0.000300 - 0.000700
Arm Power	-0.000005603	-0.000004958	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.85	2.00	0.15	+/- 0.20
Medium Ring (in)	3.62	3.75	0.13	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.32	6.50	0.18	+/- 0.20
Medium Ring (in)	8.14	8.25	0.11	+/- 0.20
Large Ring (in)	15.03	15.00	-0.03	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
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SDLT CALIPER FIELD CALIBRATION

Tool Name: SDLT - 10895353

Reference Calibration Date: 18-May-10 11:26:57

Engineer: G. ALLEN

Calibration Date: 17-Jun-10 09:51:27

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.83	0.08	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACR1 - I2075042	Reference Calibration Date:	26-May-10 15:34:36
Engineer:	K. NORMAND	Calibration Date:	26-May-10 15:43:08
Software Version:	WL INSITE R2.6.1 (Build 9)	Calibration Version:	1

TYPICAL GAIN RANGE

Subarray	R12KHz		R36KHz		R72KHz				
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80')	0.95	1.0098	1.05	0.95	1.0148	1.05	0.95	1.0205	1.05
A2 (50')	0.95	1.0157	1.05	0.95	1.0215	1.05	0.95	1.0297	1.05
A3 (29')	0.95	1.0111	1.05	0.95	1.0166	1.05	0.95	1.0216	1.05
A4 (17')	0.95	1.0066	1.05	0.95	1.0100	1.05	0.95	1.0178	1.05
A5 (10')	N/A	N/A	N/A	0.95	1.0091	1.05	0.95	1.0161	1.05
A6 (6')	N/A	N/A	N/A	0.95	0.9974	1.05	0.95	1.0046	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz		R36KHz		R72KHz				
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80')	-5	0.023	2	-6	-3.680	-2	-8	-5.887	-2
A2 (50')	-7	-1.872	-2	-8	-3.584	-2	-7	-5.328	-2
A3 (29')	-27	-13.482	-9	-9	-4.385	-3	-7	-5.187	-1
A4 (17')	-180	-104.284	-60	-45	-35.626	-15	-39	-29.580	-13
A5 (10')	N/A	N/A	N/A	-150	-93.107	-50	-80	-62.588	-10
A6 (6')	N/A	N/A	N/A	175	215.937	525	80	66.318	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8767	1.3
36K	1.0	1.2026	2.0
72K	1.0	1.6634	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.999	1.05

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11277438						
Gamma Ray Calibrator	236.0	-----	-----	0.0	+/- 9.00	api
DSNT-1C813523						
Snow-Block Porosity	0.0631	0.0655	-----	-0.0024	+/- 0.0150	decp
SDLT-10885355						
Near(B+D+P+L)	1495.711	1489.564	-----	6.147	+/- 15.585	cps
Far(B+D+P+L)	800.492	797.088	-----	3.404	+/- 15.670	cps
Pad Extension	3.75	3.83	-----	-0.08	+/- 0.10	in
Ring Diameter	8.25	8.24	-----	0.010	+/- 0.15	in

Mud Cell

0.999

0.000

ohm m

Data: PETRO_UTE_20_110001 IQ_TRIPLEVLDL

Date: 17-Jun-10 20:04:42

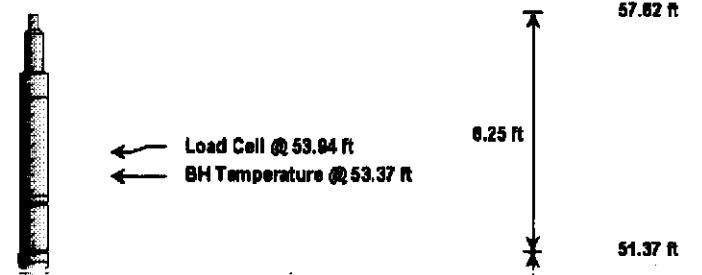
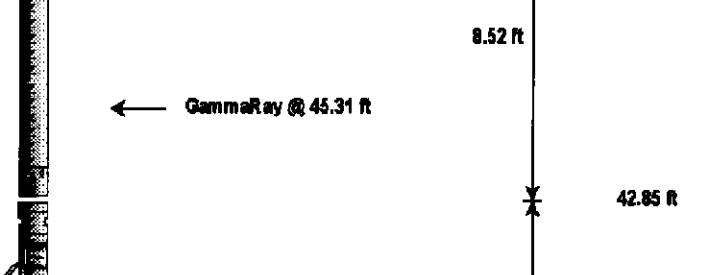
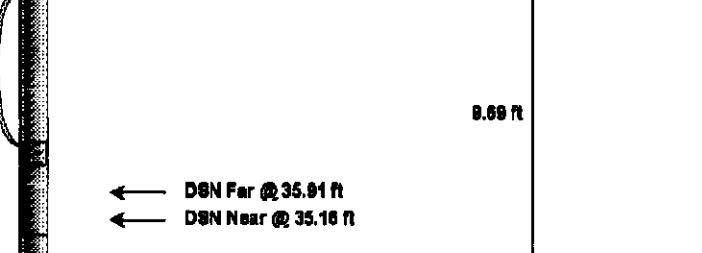
HALLIBURTON**CUSTOMER EVENT LOG**

Event Type	Time & Date	Depth (ft)	Event Description	TGS
	17-Jun-10 18:38:46	679.50	Logging 001 17-Jun-10 18:38 Up @679.5f	
	17-Jun-10 18:44:38	370.09	Halting 001 17-Jun-10 18:38 Up @679.5f	
	17-Jun-10 18:46:39	203.50	Logging 002 17-Jun-10 18:46 Dn @203.5f	
	17-Jun-10 19:16:59	6047.22	Halting 002 17-Jun-10 18:46 Dn @203.5f	
	17-Jun-10 19:17:15	6056.00	Logging 003 17-Jun-10 19:17 Up @6056.0f	
	17-Jun-10 19:26:12	5844.35	Halting 003 17-Jun-10 19:17 Up @6056.0f	
	17-Jun-10 19:32:25	6053.25	Logging 004 17-Jun-10 19:32 Up @6053.3f	

Data: PETRO_UTE_20_110001 IQ_TRIPLEHW11255

Date: 17-Jun-10 20:04:02

HALLIBURTON**TOOL STRING DIAGRAM REPORT**

Description	C.D.	Diagram	Sensors & Delays	Length	Accumulated Length
RWCH-10895163 135.00 lbs	Ø 3.625 in →		← Load Cell @ 53.84 ft ← BH Temperature @ 53.37 ft	8.25 ft	57.82 ft
GTET-11277435 165.00 lbs	Ø 3.625 in →		← GammaRay @ 45.31 ft	8.52 ft	51.37 ft
DSNT-10813523 174.00 lbs	Ø 3.625 in →		← DSN Far @ 35.91 ft ← DSN Near @ 35.16 ft	8.69 ft	42.85 ft

SDLT-10895363
360.00 lbs

Ø 4.500 in →

10.81 ft

Ø 4.750 in →

SDL Microlog @ 25.35 ft
SDL Caliper @ 25.16 ft
SDL @ 25.15 ft

22.35 ft

ACRT-I2078842
250.00 lbs

Ø 3.625 in →

18.25 ft

← ACRT @ 11.98 ft

Hole Finder-MULE_SHOE
50.00 lbs

Ø 2.800 in →

3.10 ft

Ø 3.625 in →

3.10 ft

← SP @ 4.38 ft

0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max Log Speed (fpm)
RWCH	Releasable Wireline Cable Head	10895163	135.00	6.25	51.37	300.00
GTET	Gamma Telemetry Tool	11277435	165.00	8.52	42.85	60.00
DSNT	Dual Spaced Neutron	10813523	174.00	9.69	33.16	60.00
DCNT	DSN Decentralizer	10813523	8.60	5.13	38.49	300.00
SDLT	Spectral Density Tool	10895353	360.00	10.81	22.35	60.00
ACRT	Array Compensated True Resistivity	I2075842	250.00	18.25	3.10	300.00
SP	SP Ring	1	0.00	0.25	4.38	300.00
HFND	Hole Finder	MULE_SHOE	50.00	3.10	0.00	300.00

Total

1,140.00 57.62

* Not included in Total Length and Length Accumulation.

Data: PETRO_Ute_20_110001 IQ_TRIPLE004 17-Jun-10 19:32 Up @8053.3f

Date: 17-Jun-10 20:03:07

COMPANY PETROGLYPH OPERATING COMPANY

WELL UTE TRIBAL 20-11

FIELD ANTELOPE CREEK

COUNTY DUCHESNE

STATE

UTAH

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON

2022

R

HALLIBURTON

**ARRAY COMPENSATED
TRUE RESISTIVITY**

COMPANY		PETROGLYPH OPERATING COMPANY		PETROGLYPH OPERATING COMPANY	
WELL		UTE TRIBAL 20-11		UTE TRIBAL 20-11	
FIELD		ANTELOPE CREEK		ANTELOPE CREEK	
COUNTY		DUCHEsNE		DUCHEsNE	
STATE		UTAH		UTAH	
API No.	43013340480000	Location	SURFACE HOLE LOCATION: 1859 FSL & 2033' FWL (NE. SE.) LJ	Other Services:	RWCH DSNT/SDLT
Permanent Datum	GL		Elev.: 843.5 ft	Elev.: K.B.	6457.5 ft
Log measured from	KB		14.0 ft above perm. Datum	D.F.	8458.5 ft
Drilling measured from	KB			GL.	343.5 ft
Date	20	Temp.	.55	Rez.	3N
Run No.	ONE				
Depth - Driller	6042.00 ft				
Depth - Logger	6041.0 ft				
Bottom - Logged Interval	6037.0 ft				
Top - Logged Interval	100.0 ft				
Casing - Driller	8.625 in	②	507.0 ft	②	
Casing - Logger	508.0 ft			②	
Bit Size	7.875 in			②	
Type Fluid in Hole	WATER BASED MUD				
Density	8.3 ppg	27.00 sgt			
pH	7.00 pH				
Source of Sample	MUD TANK				
Rm @ Meas. Temperature	②	②			
Rmf @ Meas. Temp.	②	②			
Rmc @ Meas. Temp.	②	②			
Source Rmf	Rmc				
Rm @ BHT	②	②			
Rmf @ BHT	②	②			
Rmc @ BHT	②	②			
RECEIVED JUL 29 2010					
DIV OF OIL, GAS & MINING					

Fold here

Service Ticket No.: 7444594		API Serial No.: 43013340480000		PGM Version: WL INSITE R2.6.1 (Build 9)			
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.	Type Log	Depth	Scale Up Hole		Scale Down Hole	
Depth-Driller							
Type Fluid In Hole							
Density	Viscosity						
Ph	Fluid Loss						
RESISTIVITY EQUIPMENT DATA							
Rm @ Meas. Temp	②	②	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rmf @ Meas. Temp.	②	②	ONE	ACRT-I207S842	N/A	1.5° STANDOFF	N/A
Rmc @ Meas. Temp.	②	②					
Source Rmf	Rmc						
Rm @ BHT	②	②					
Rmf @ BHT	②	②					
Rmc @ BHT	②	②					
EQUIPMENT DATA							
GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11277435	Serial No.		Serial No.	10895353	Serial No.	10813523
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cen.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	GTET	Spacing		Log Type	GAMMA-GAMMA	Log Type	THERMAL
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5246GW	Serial No.	21480B
Distance to Source	10'	FWD A/Y/N		Strength	1.5 Ci	Strength	15 Ci

Witnessed By
A. POLLARD

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC			DENSITY		NEUTRON												
Run	Depth		Speed	Scale		Scale	Matrix	Scale		Matrix	Scale											
No.	From	To	ft/min	L	R	L		L	R		L	R										
ONE	6041'	100'	REC	0	200			30%	-10%	2.68 g/cc	30%	-10%										
DIRECTIONAL INFORMATION																						
Maximum Deviation	@				KOP @																	
Remarks: RWCH, GTET, DSNT, SDLT, ACRT RAN IN COMBINATION.																						
ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH PRODUCTION CASING.																						
BOREHOLE RUGOSITY, TENSION PULLS, AND WASHOUT MAY EFFECT TOOL RESPONSE.																						
CHLORIDES: 100 mg/L																						
LATITUDE: 40.030248°N																						
LONGITUDE: 110.248238°W																						
TODAY'S CREW: M. BARTHOLOMEUSZ & R. HORSLEY																						
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - VERNAL, UT (435) 788-2650																						
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.																						
HALLIBURTON																						

HALLIBURTON**PARAMETERS REPORT**

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
SHARED	BS	Bit Size		7.875	in
SHARED	UBS	Use Bit Size instead of Caliper for all applications.		No	
SHARED	MDWT	Borehole Fluid Weight		8.340	ppg
SHARED	OBM	Oil Based Mud System?		No	
SHARED	RMUD	Mud Resistivity		0.810	ohmm
SHARED	TRM	Temperature of Mud		75.0	degF
SHARED	CSD	Logging Interval is Cased?		No	
SHARED	ICOD	AHV Casing OD		5.500	in
SHARED	ST	Surface Temperature		75.0	degF
SHARED	TD	Total Well Depth		6041.00	ft
SHARED	BHT	Bottom Hole Temperature		140.0	degF
Rwa / CrossPlot	XPOK	Process Crossplot?		Yes	
Rwa / CrossPlot	FCHO	Select Source of F		Automatic	
Rwa / CrossPlot	AFAC	Archie A factor		0.6200	
Rwa / CrossPlot	MFAC	Archie M factor		2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference		0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp		75.00	degF
Rwa /	RWA	Resistivity of Formation Water		0.00	

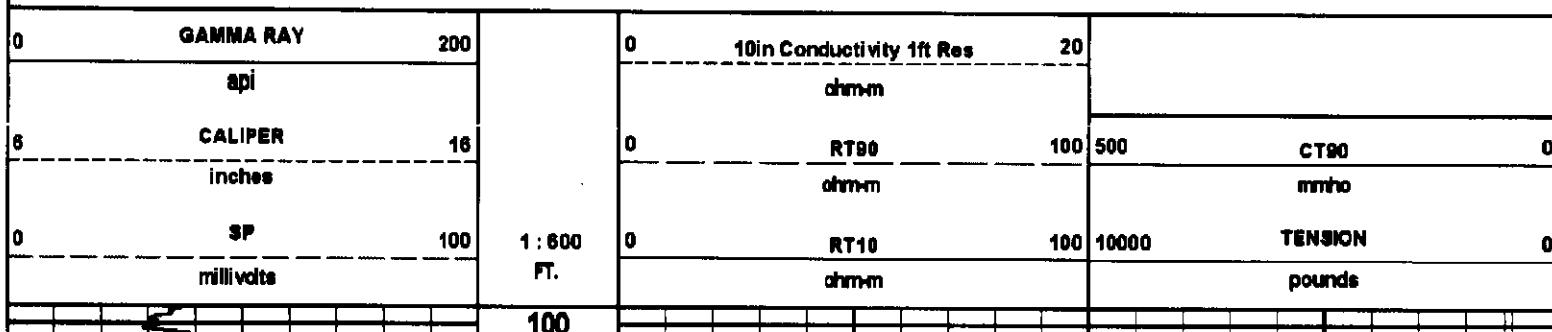
CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
GTEI	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Sandstone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	DNOK	Process Density?	Yes	
SDLT	DNOK	Process Density EVR?	No	
SDLT	AD	Is Hole Air Drilled?	No	
SDLT	CB	Logging Calibration Blocks?	No	
SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT	DTWN	Disable temperature warning	No	
SDLT	MDTP	Weighted Mud Correction Type?	None	
SDLT	DMA	Formation Density Matrix	2.680	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ACRt	RTOK	Process ACRt?	Yes	
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt	TPOS	Tool Position	Eccentered	
ACRt	RMOP	Rmud Source	Mud Cell	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMAX	Maximum Resistivity for MAP	200.00	ohmm
<hr/> BOTTOM <hr/>				

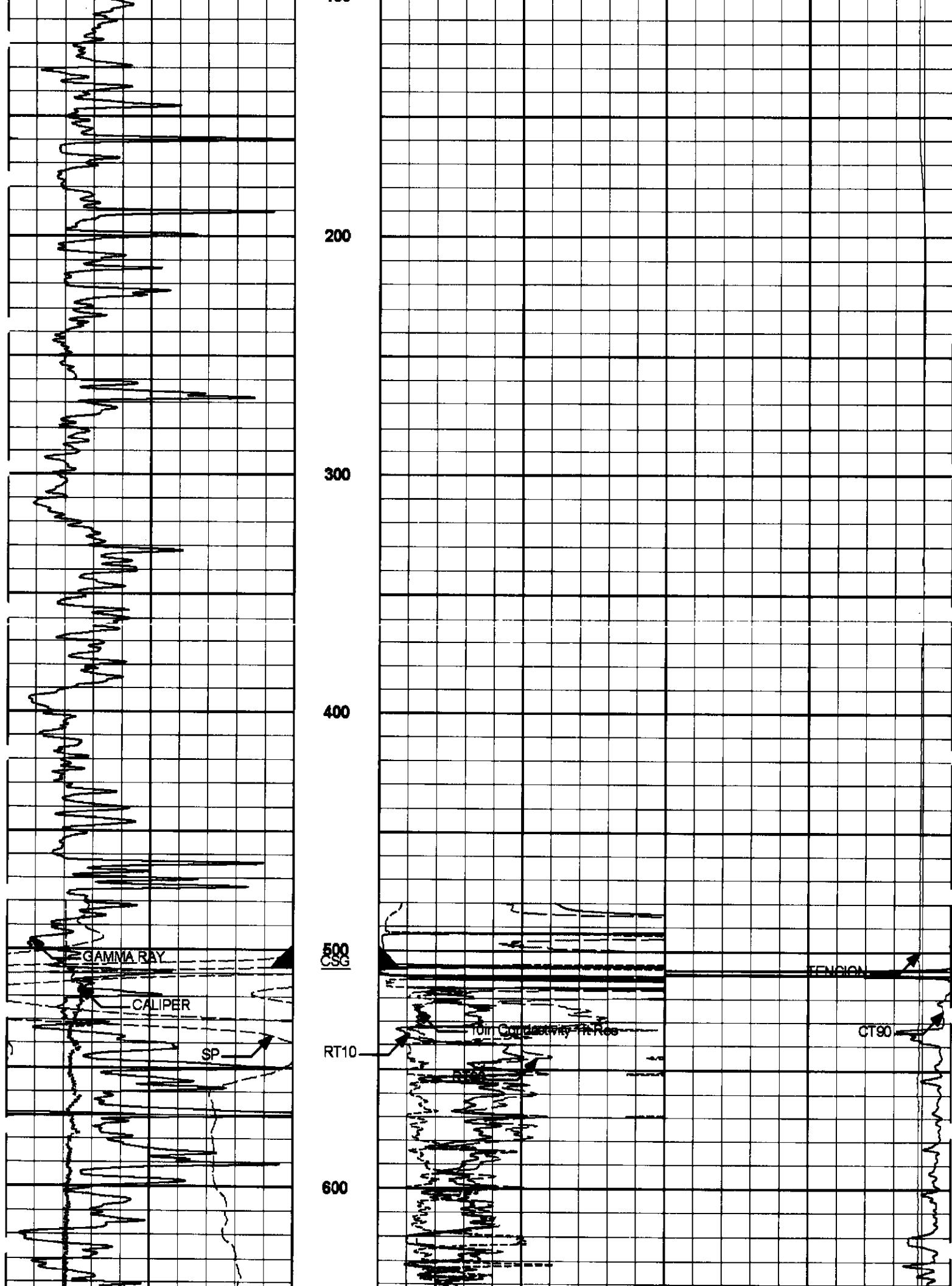
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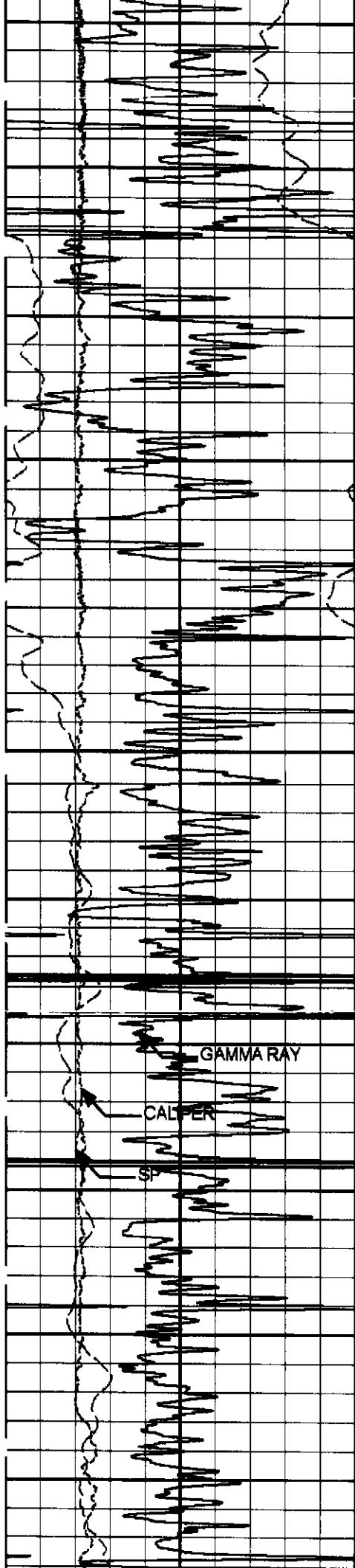
Date: 17-Jun-10 20:04:22

HALLIBURTON

Plot Time: 17-Jun-10 21:48:32
 Plot Range: 98 ft to 6051.92 ft
 Data: PETRO_UYE_20_11\Well Based\MAIN\
 Plot File: \RESV_ACRT_2IN_M

MAIN PASS 2" = 100'





700

800

900

1000

1100

AD²
TGS

GAMMA RAY

CALPER

S

1000

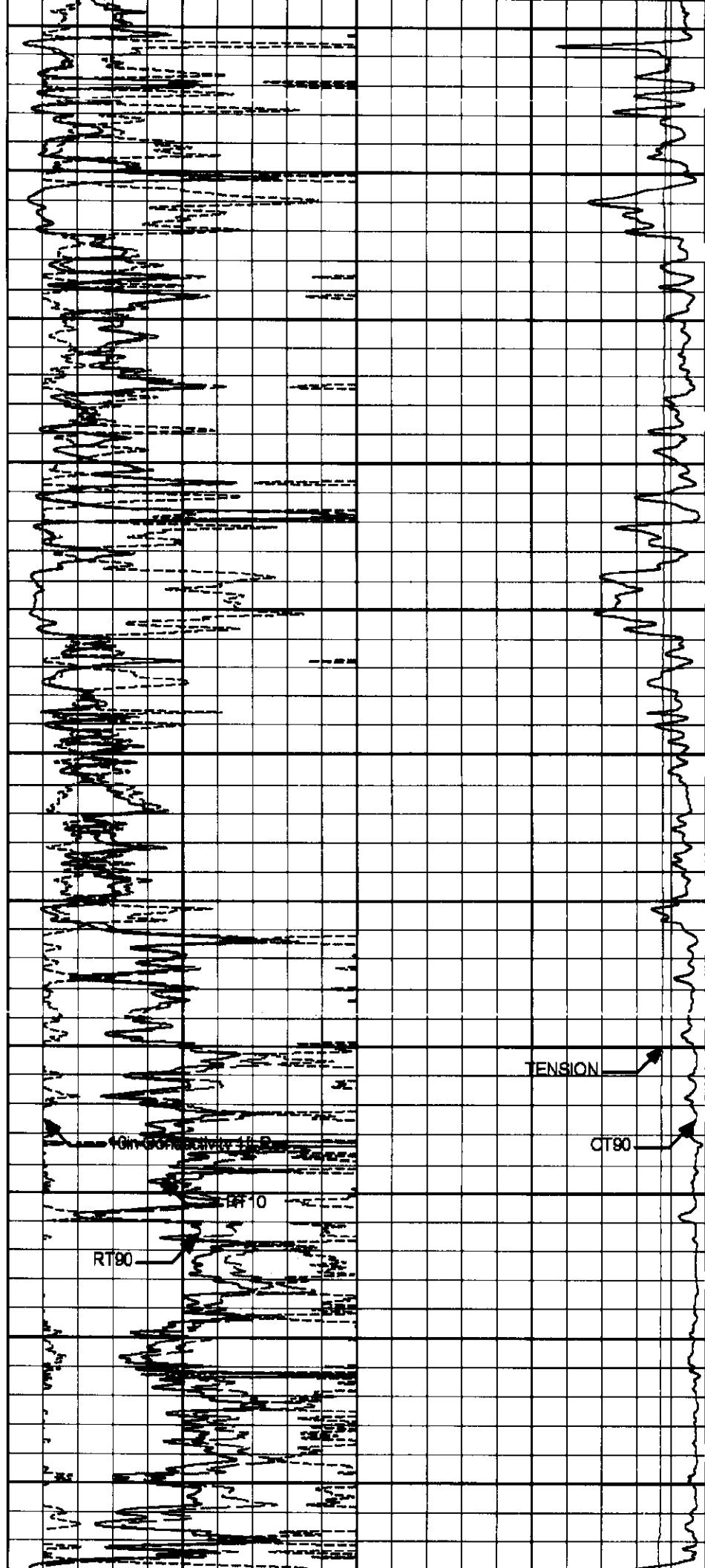
1000 ft/sec = 300 m/sec

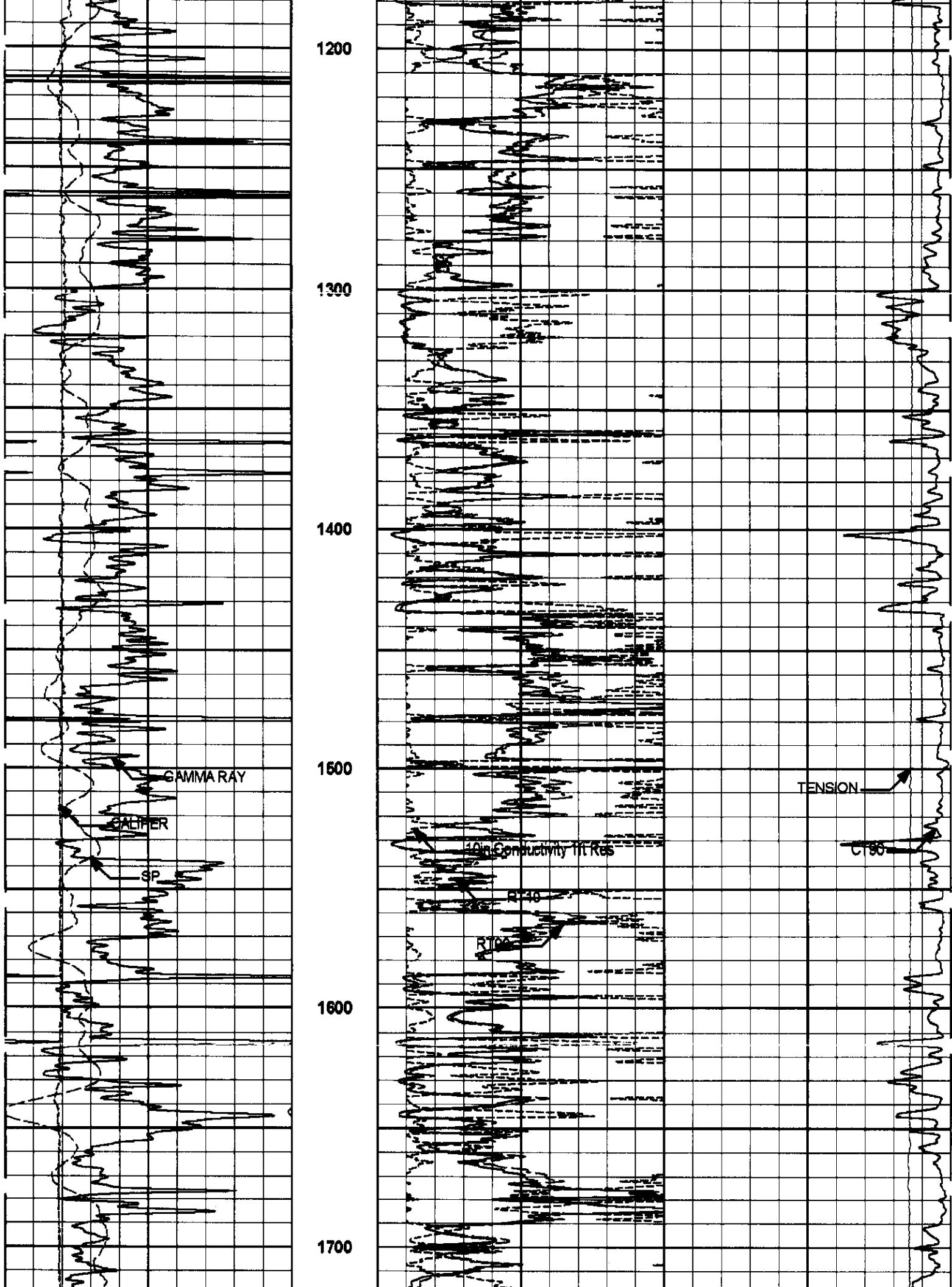
R100

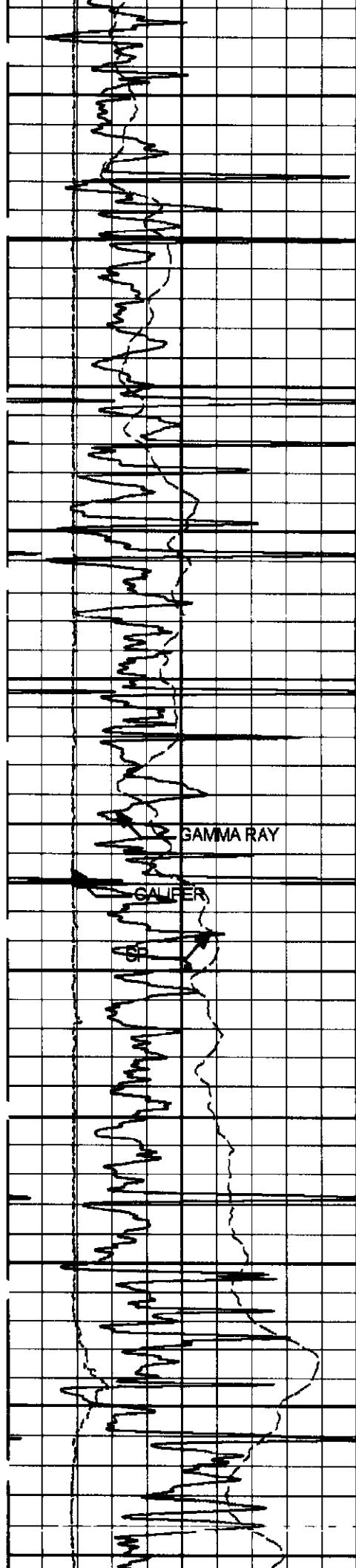
RT90

TENSION

CT90







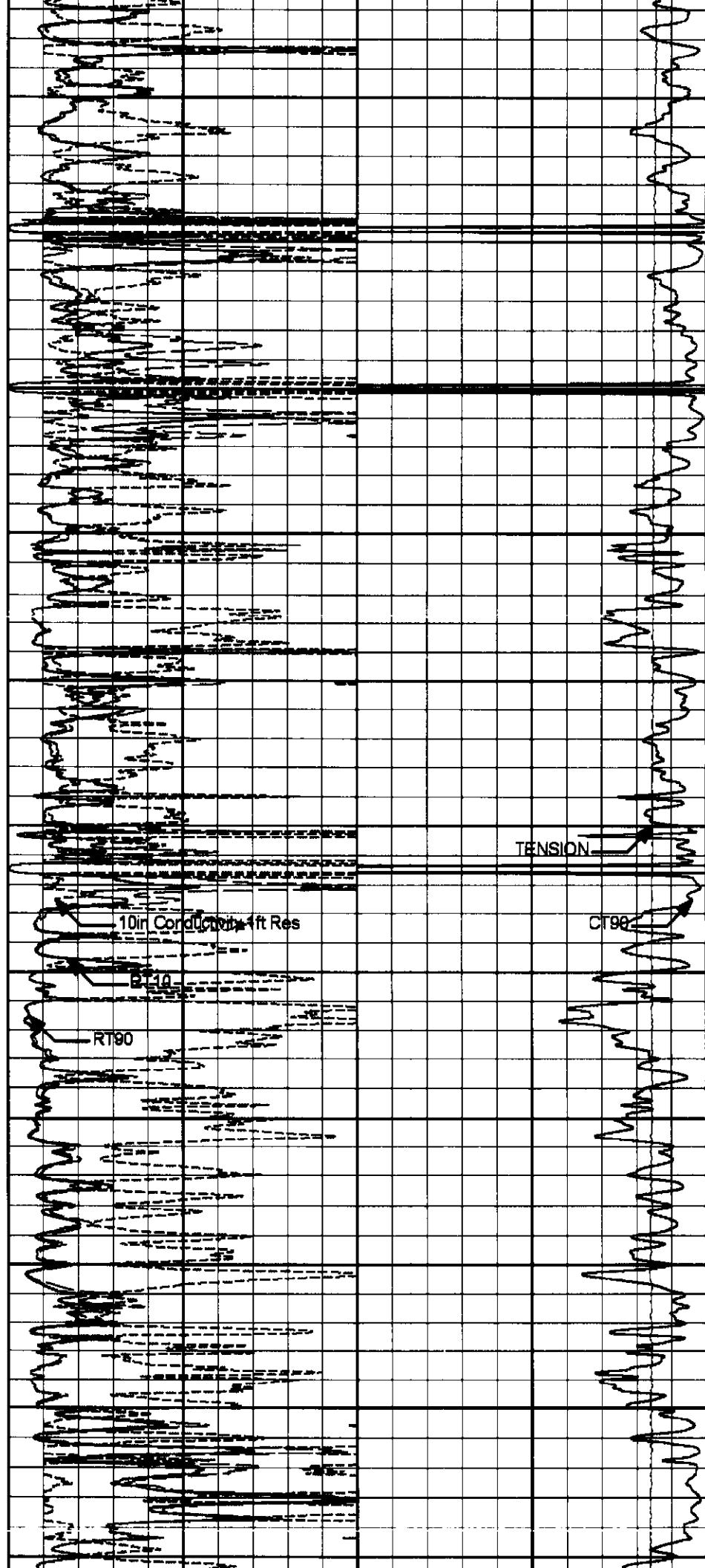
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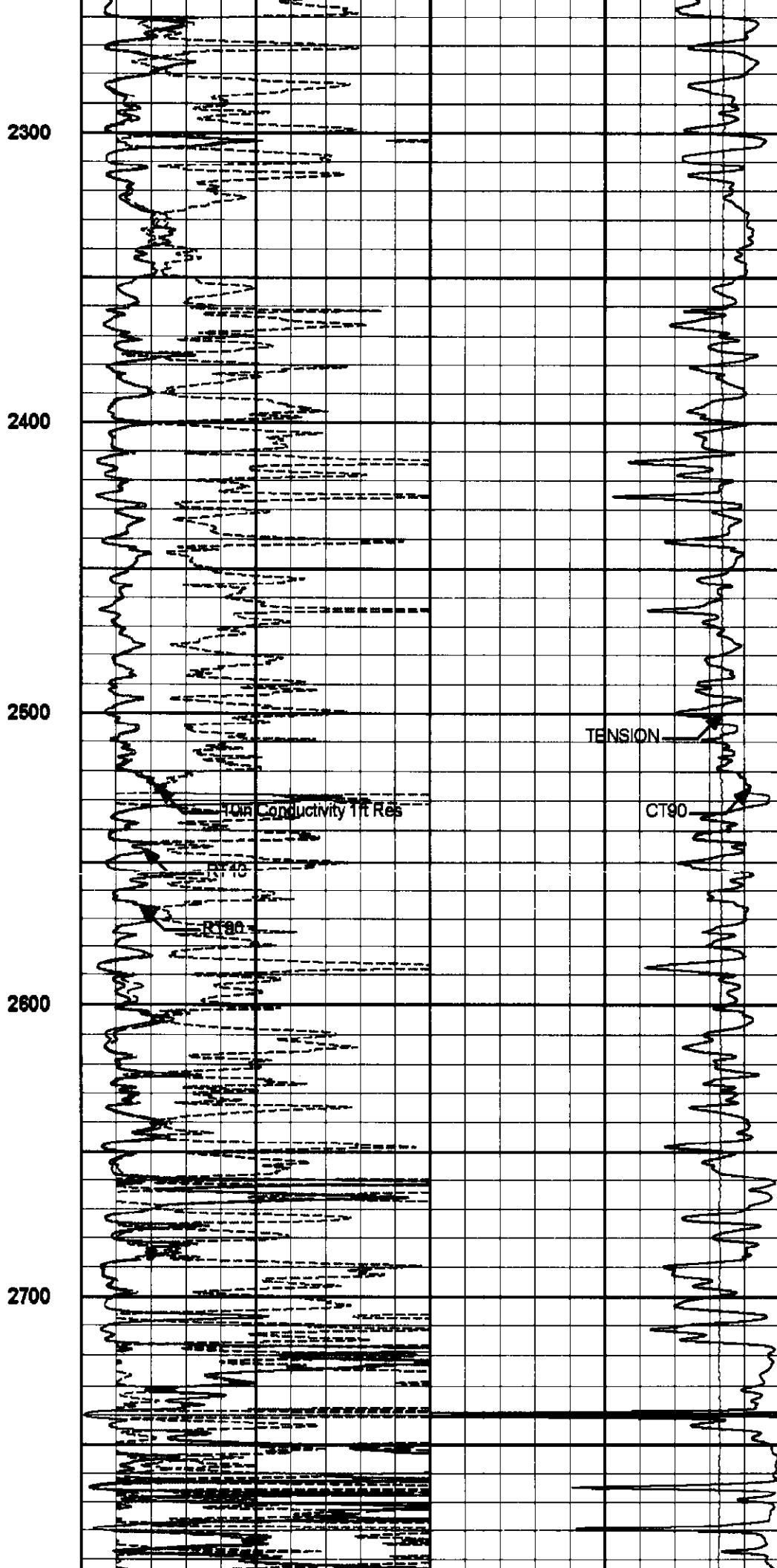
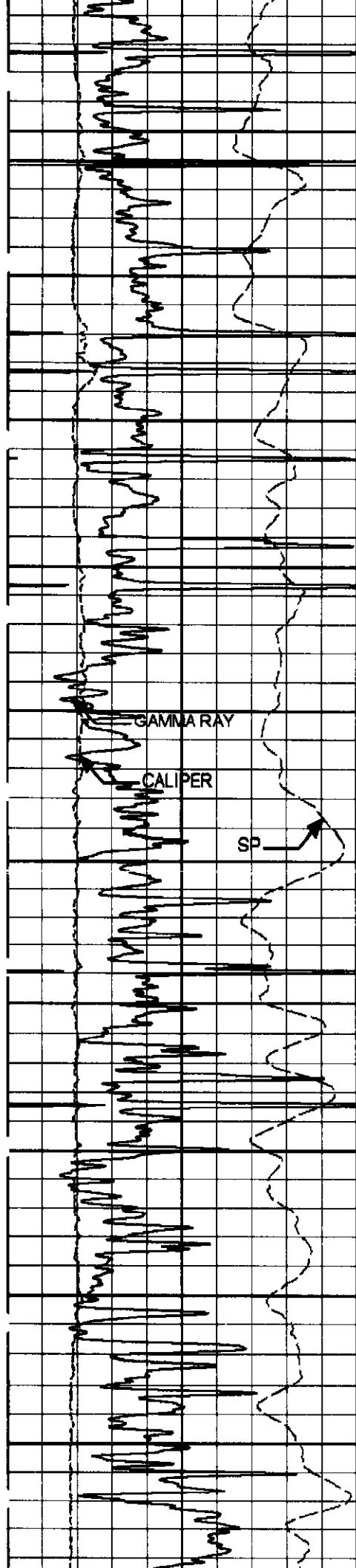
1900

2000

2100

2200

ADJ
TGS



2800

2900

3000

3100

3200

3300

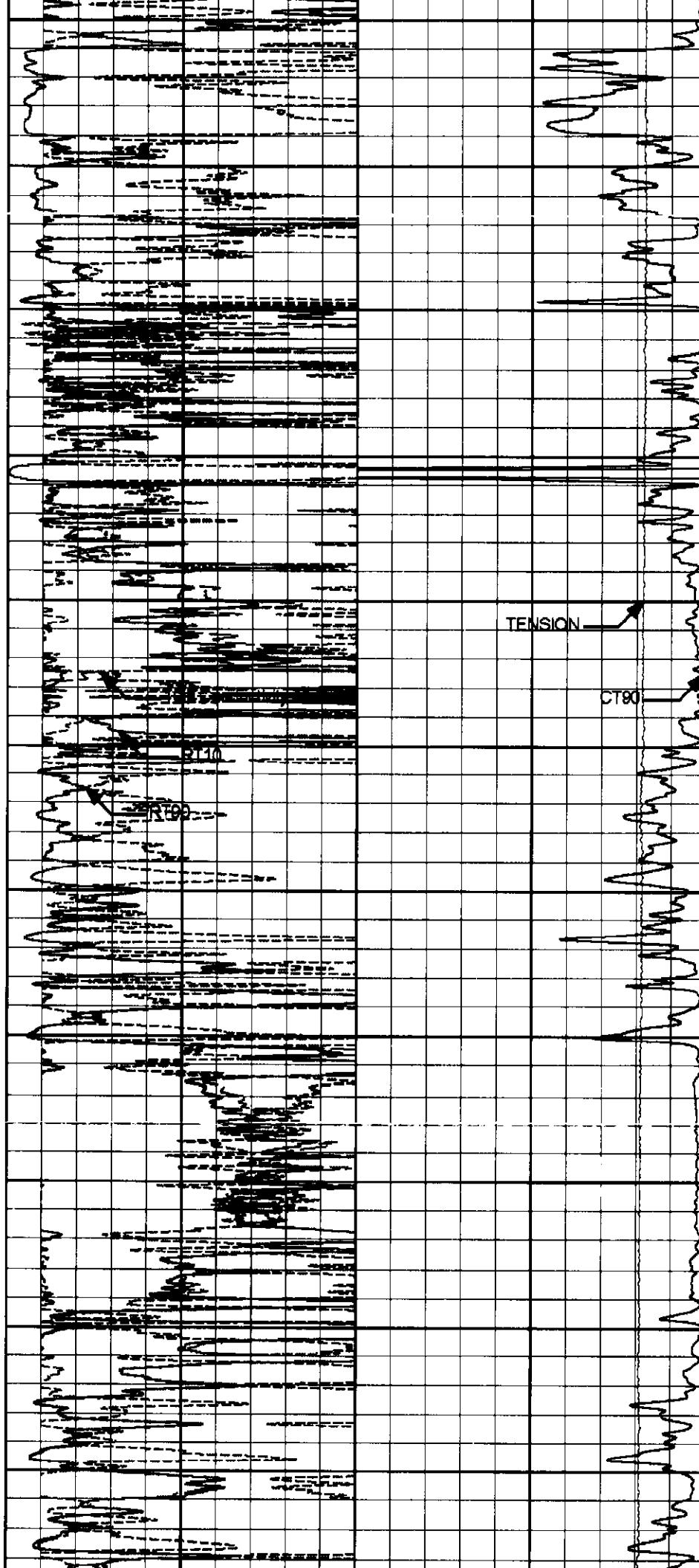
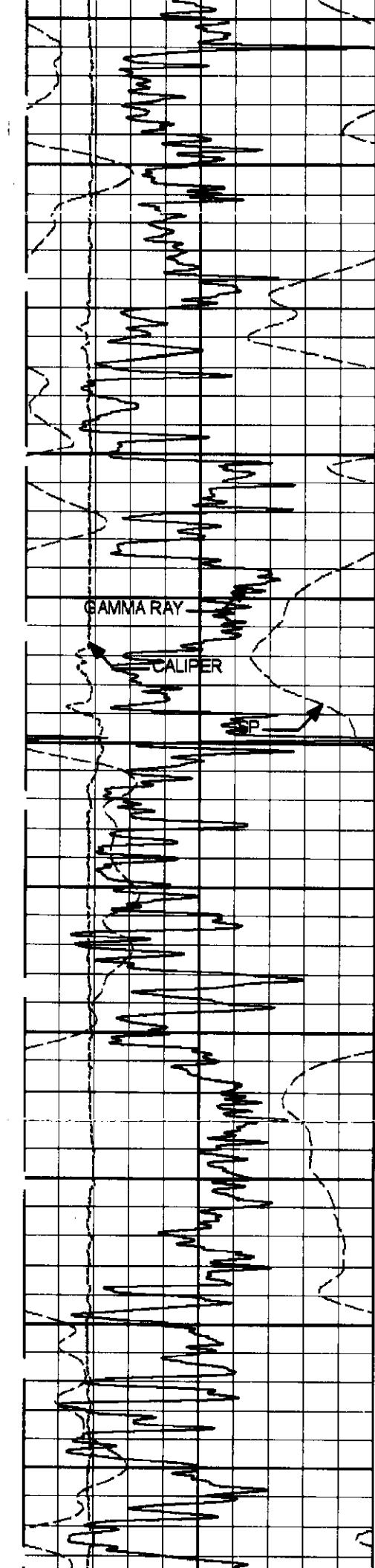
GAMMA RAY

CALIPER

SP

TENSION

CT90



TGS
3400

GAMMA RAY

CALIBR

SR

3500

3600

3700

3800

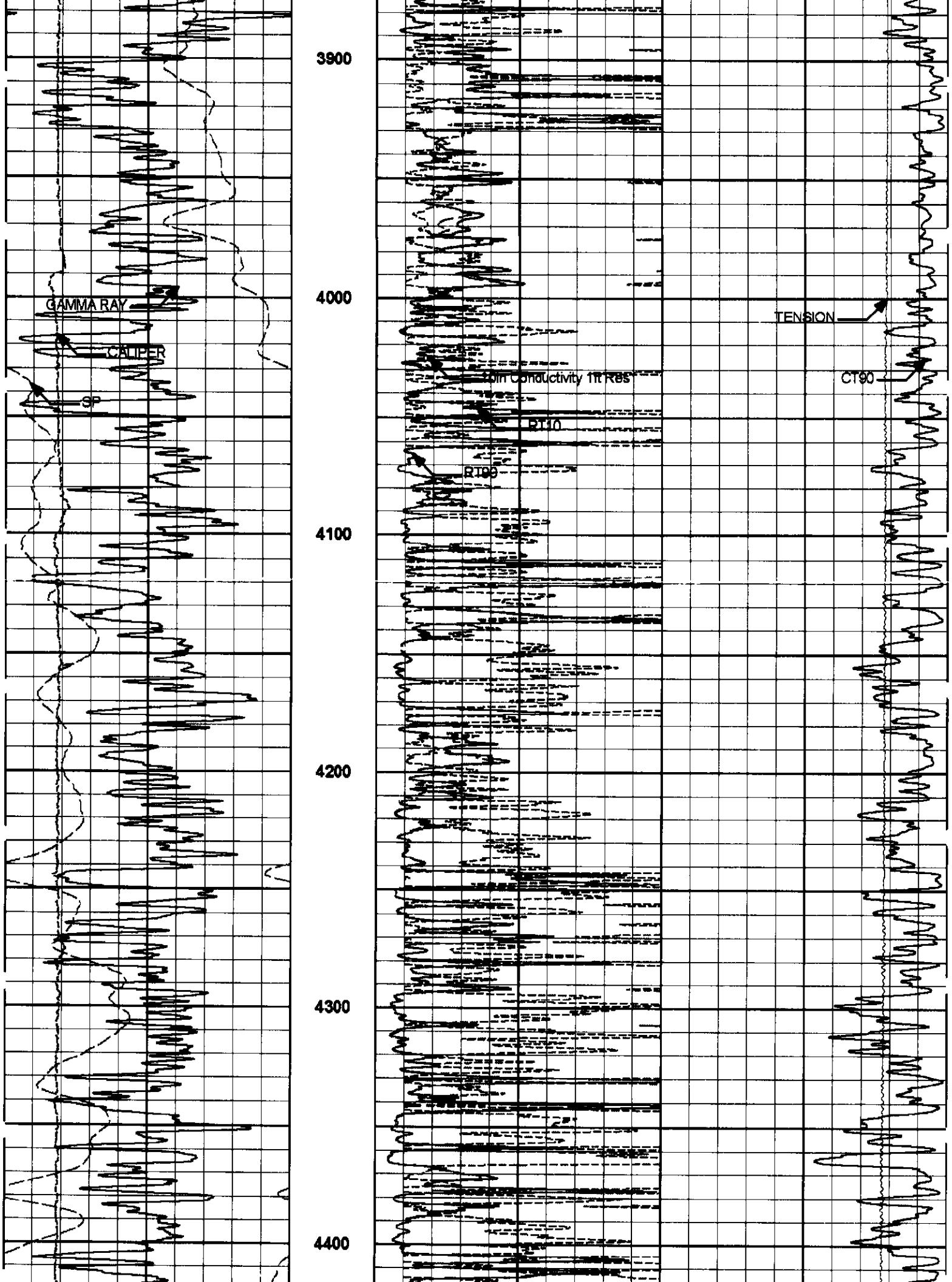
A2D

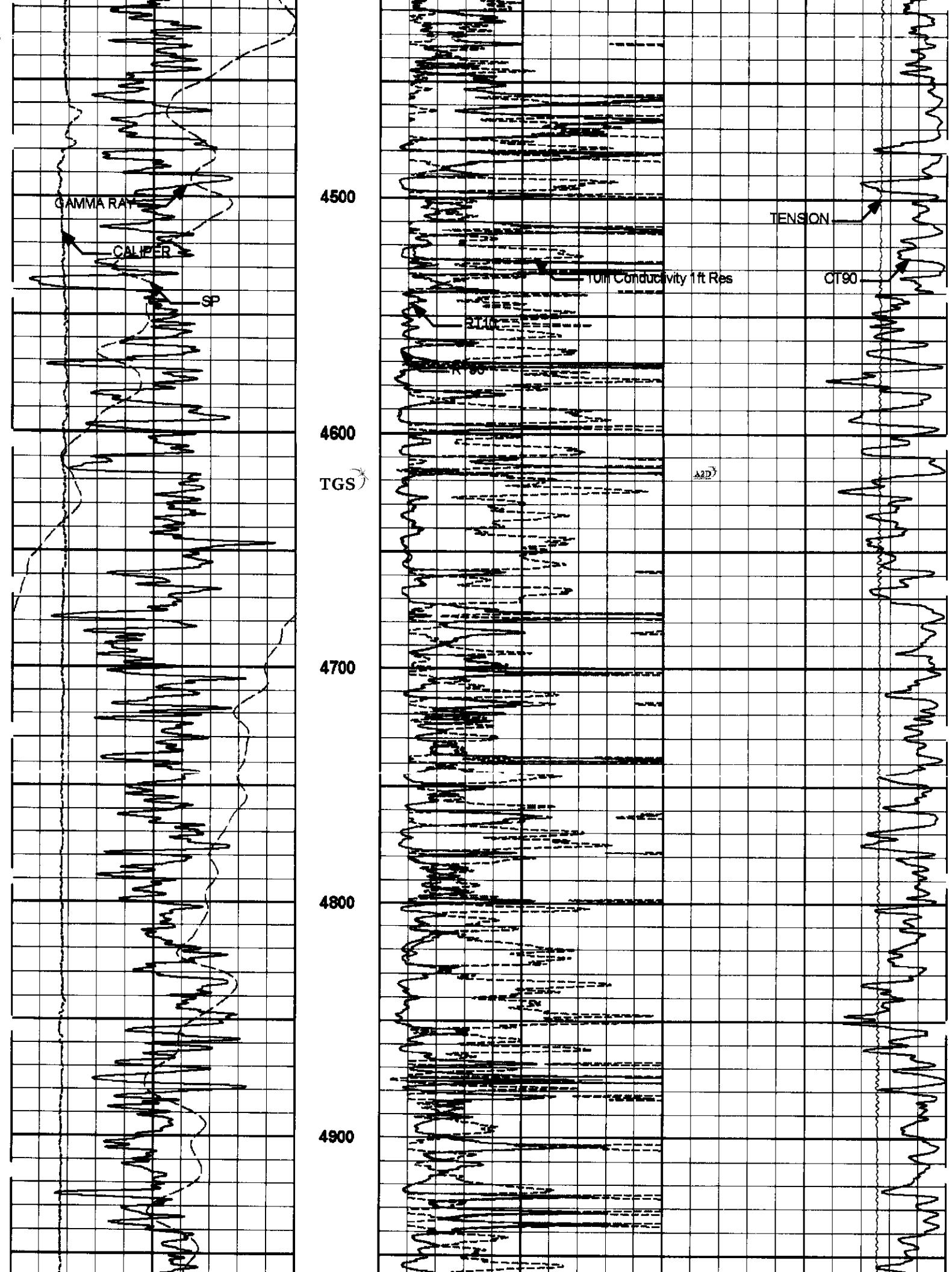
TENSION

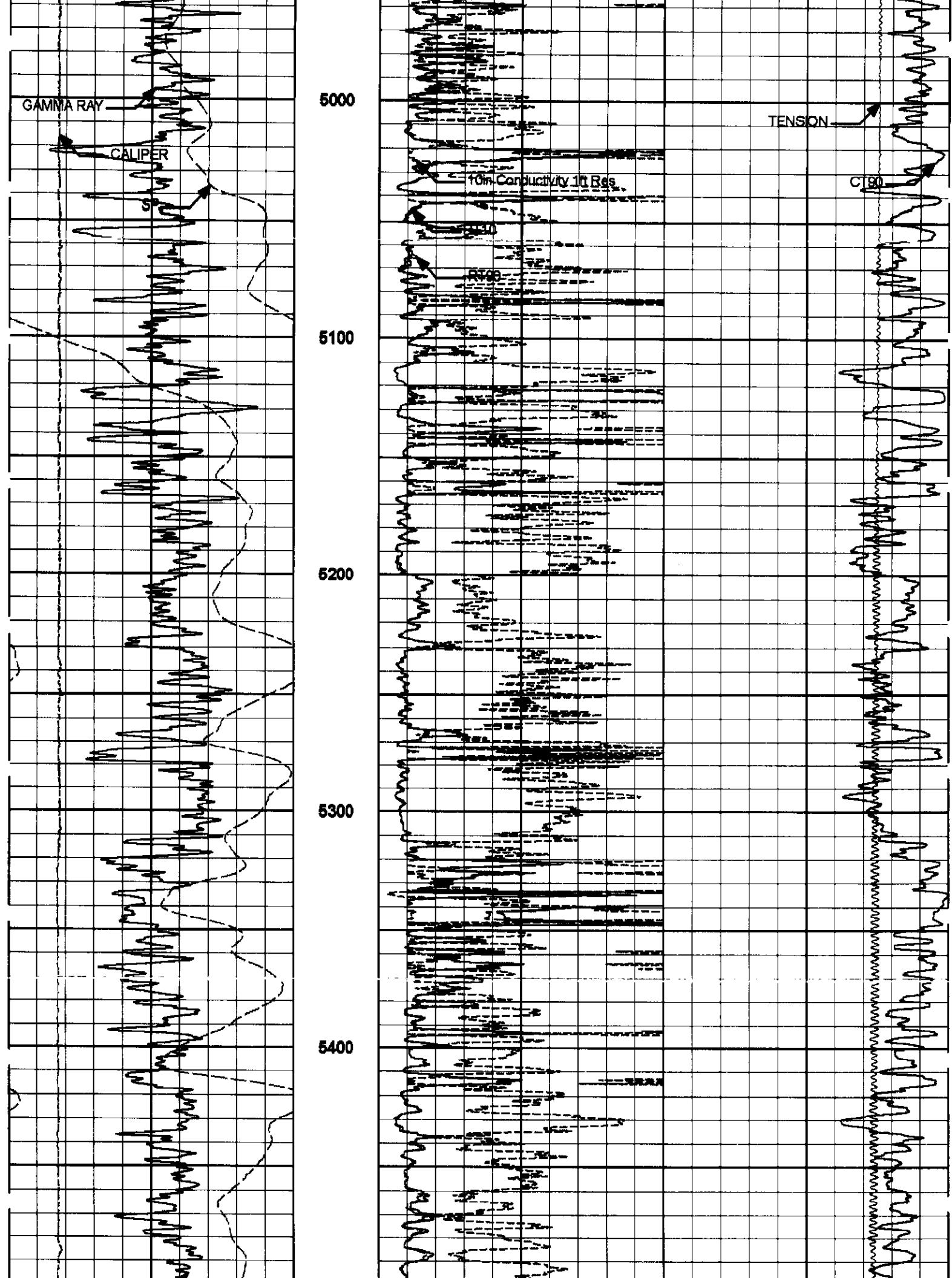
CT90

Electro Conductivity 1ft Res

R10







GAMMA RAY

CALIPER

SP

5500

TENSION

10in Conductivity 1ft Res

CT90

5600

RT90

5700

5800

TGS

5900

A2D

FR GAMMARAY

6000

FR CALIPER

FR SP

FR RT90

TENSION

FR 10in Conductivity 1ft Res

FR CT90

0	SP	100	1 : 600 FT.	0	RT10	100	10000	TENSION	0
6	millivolt				ohm-m			pounds	
6	CALIPER	16		0	RT90	100	500	CT80	0
	inches				ohm-m			mmho	
0	GAMMA RAY	200	10In Conductivity 1ft Res	0	10In Conductivity 1ft Res	20			
	api				ohm-m				

HALLIBURTON

Plot Time: 17-Jun-10 21:48:35
 Plot Range: 96 ft to 6051.02 ft
 Data: PETRO_Ute_20_11\Well Based\MAIN\
 Plot File: \RESV_ACRT_2IN_M

MAIN PASS 2" = 100'

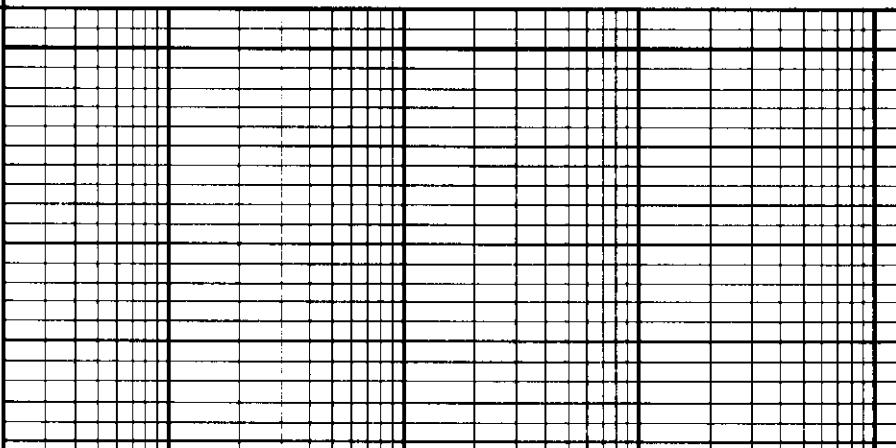
HALLIBURTON

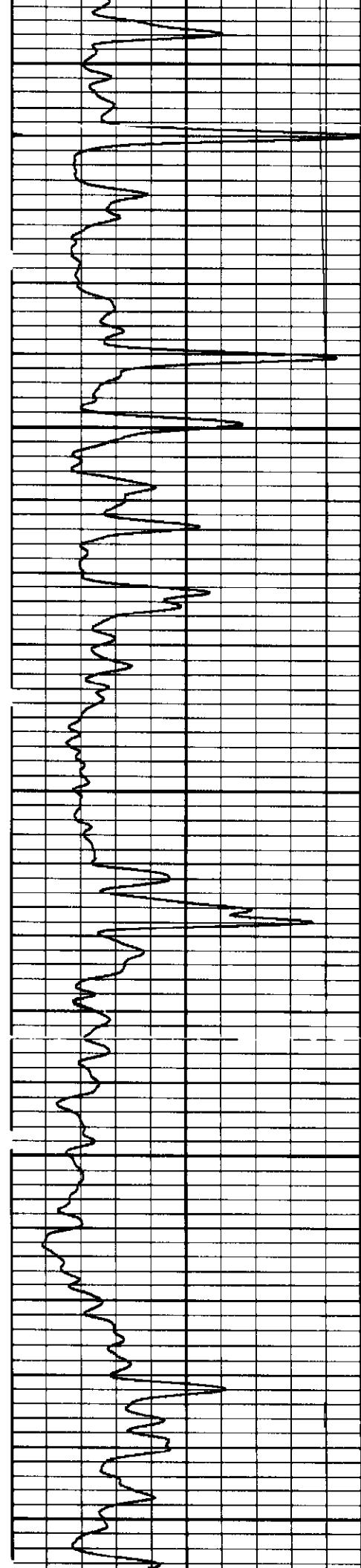
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 Plot Range: 96 ft to 6051.02 ft
 Data: PETRO_Ute_20_11\Well Based\MAIN\
 Plot File: \RESV_ACRT_5IN_M

MAIN PASS 5" = 100'

0	GAMMA RAY	200	AHV	0.2	RT90		2000	
	api			0.2	RT60		2000	
6	CALIPER	16		0.2	RT30		2000	
	inches				ohm-m			
0	SP	100	BHV	0.2	RT20		2000	
	millivolt				ohm-m			
10000	TENSION	0	1 : 240 FT.	0.2	RT10		2000	
	pounds				ohm-m			

100

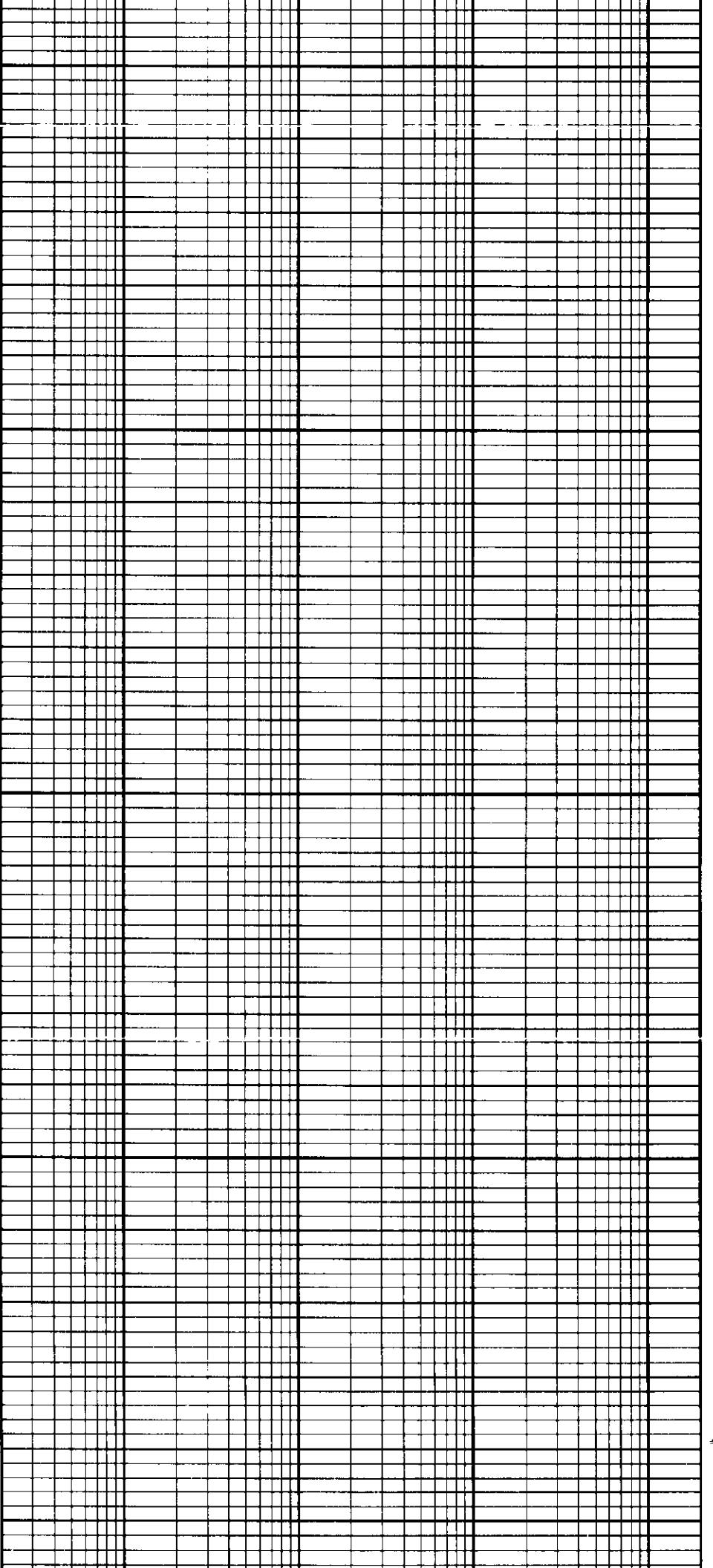




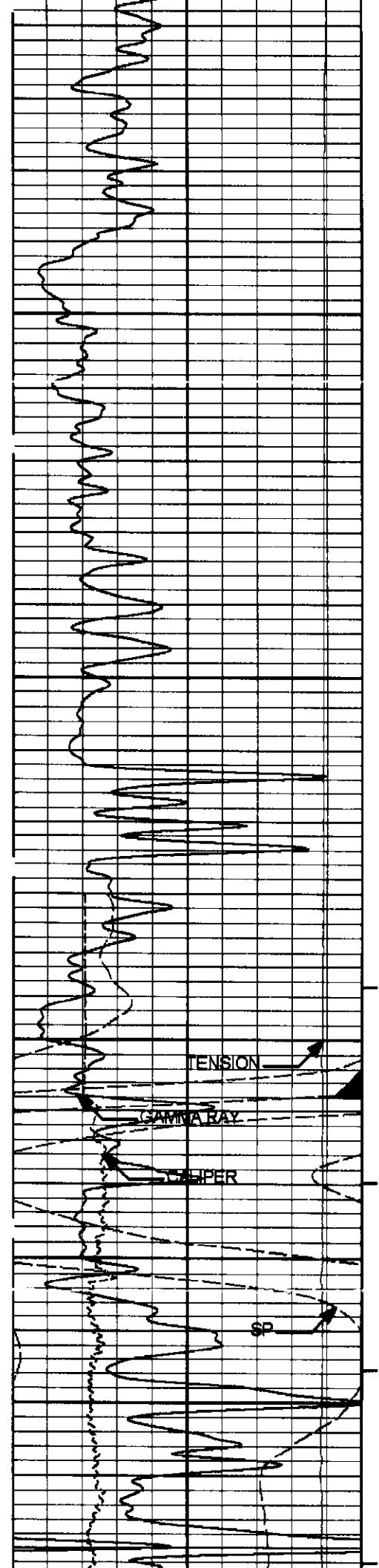
200

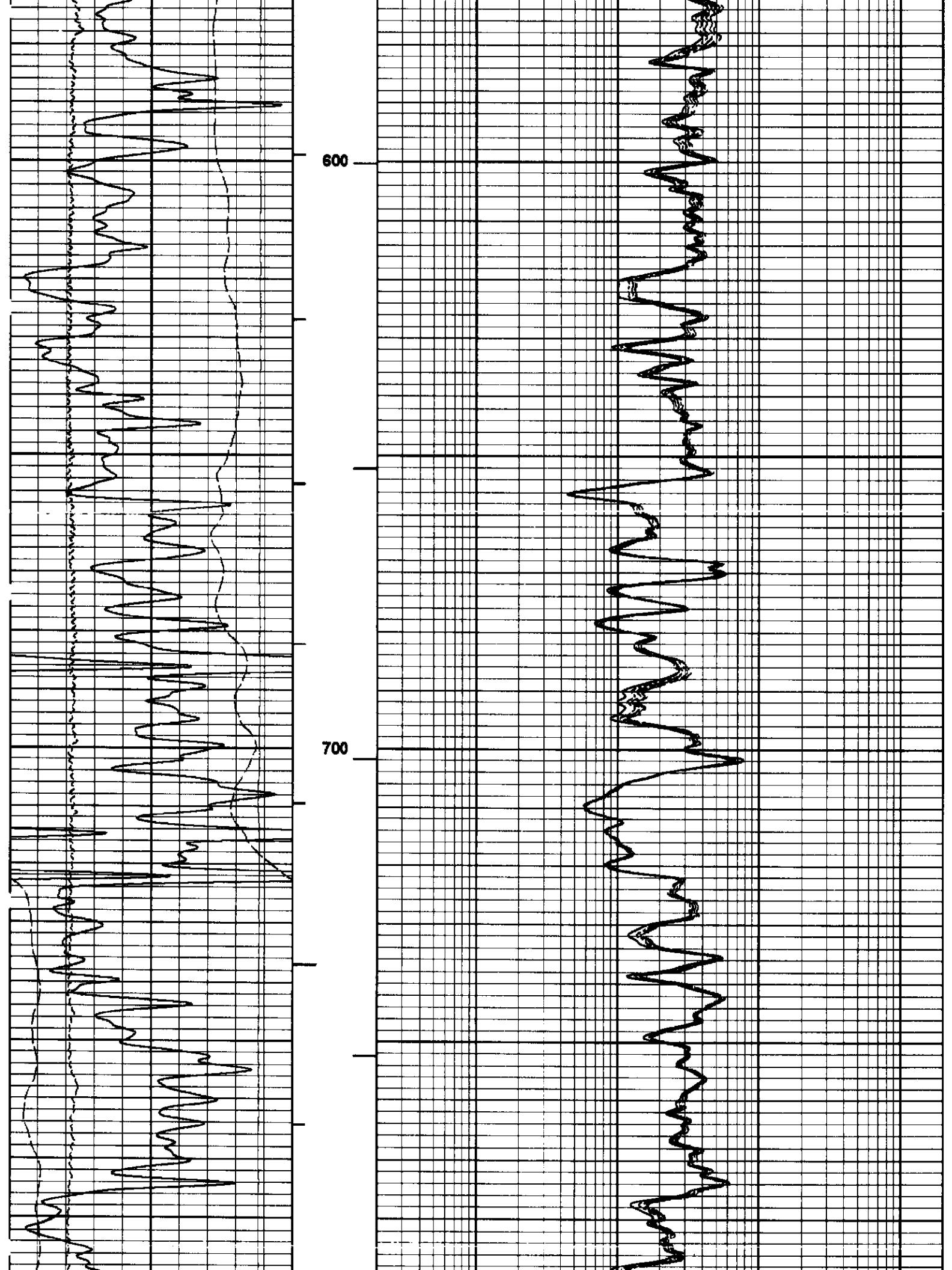
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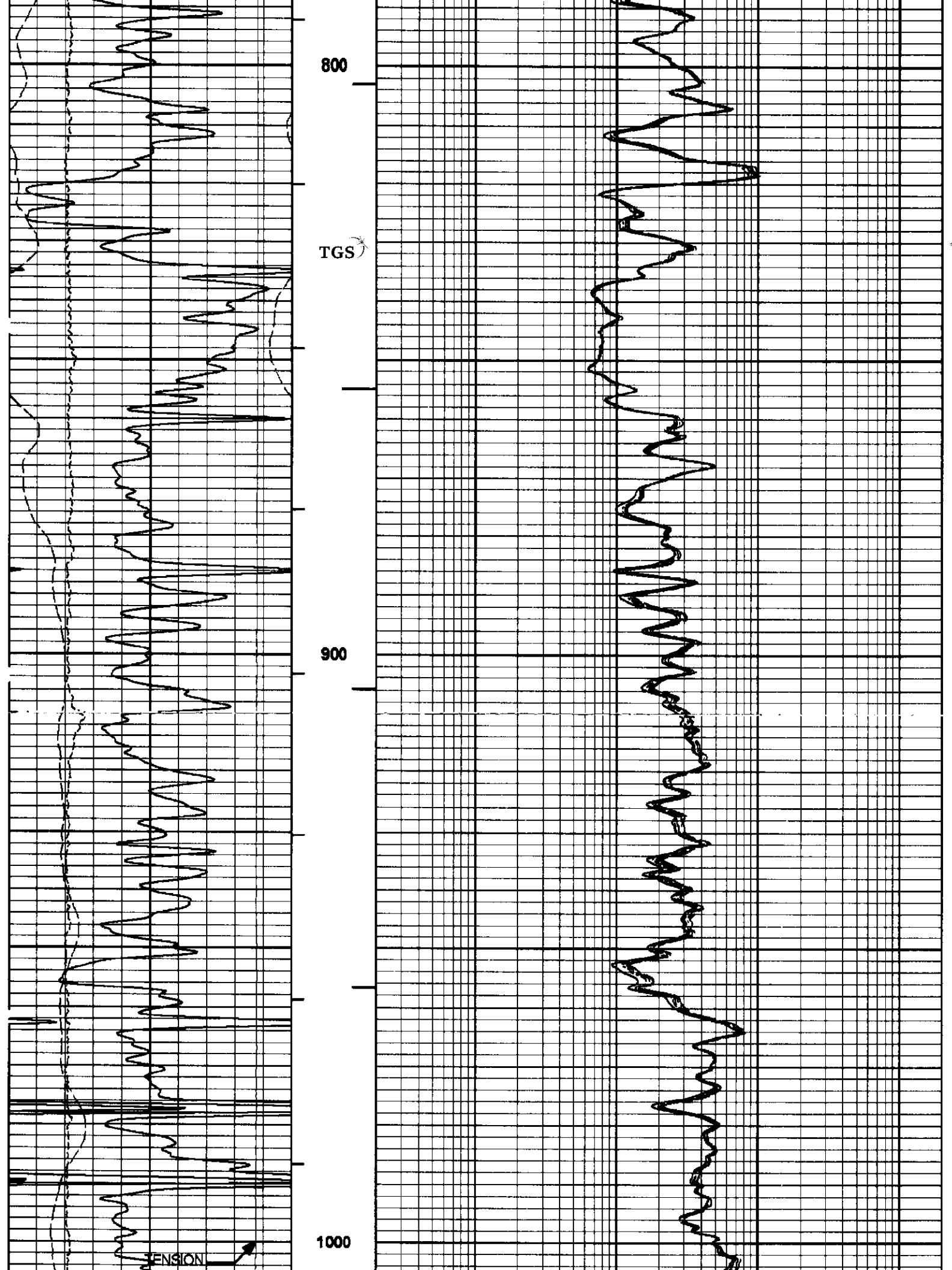
TGS

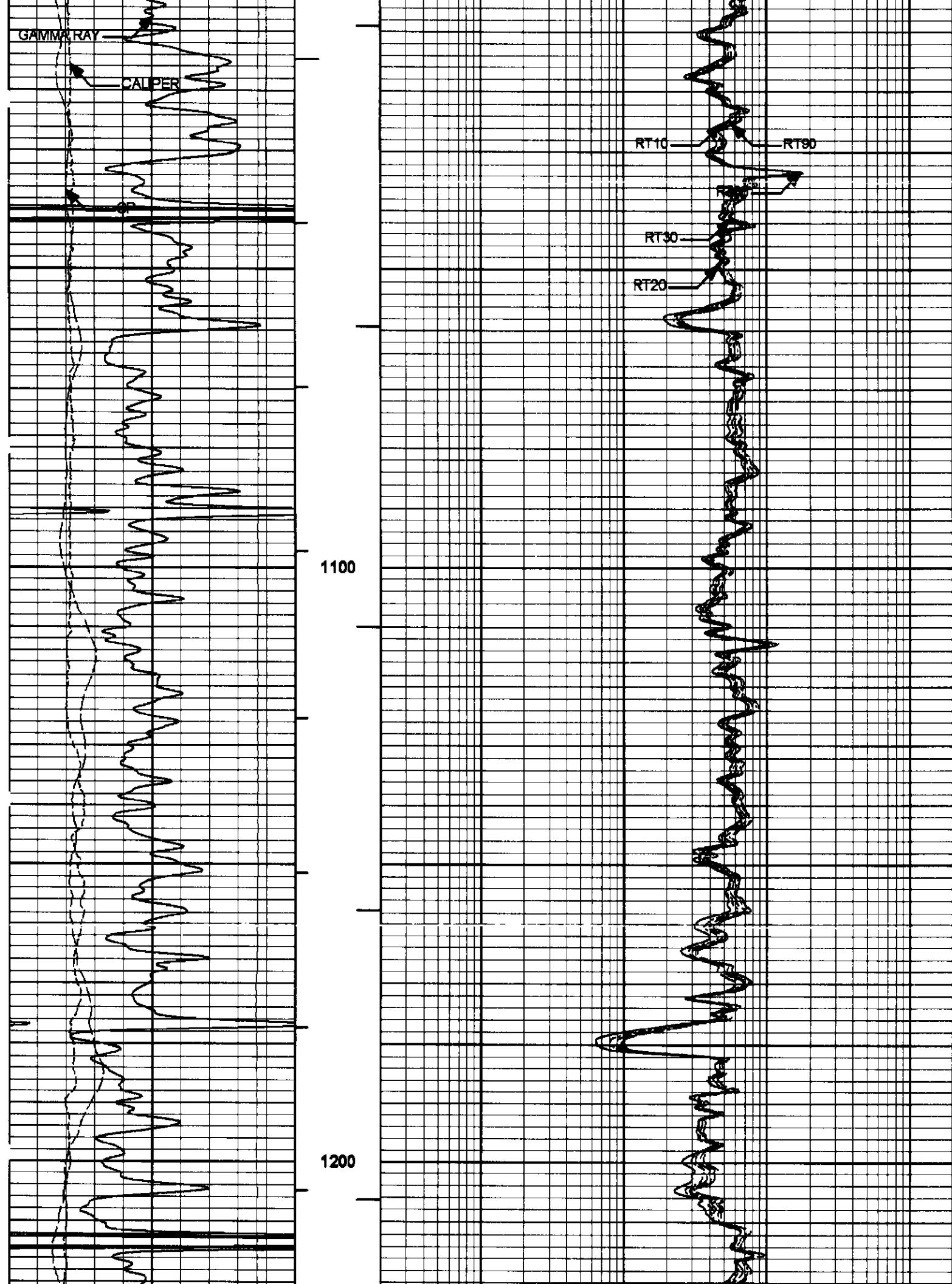


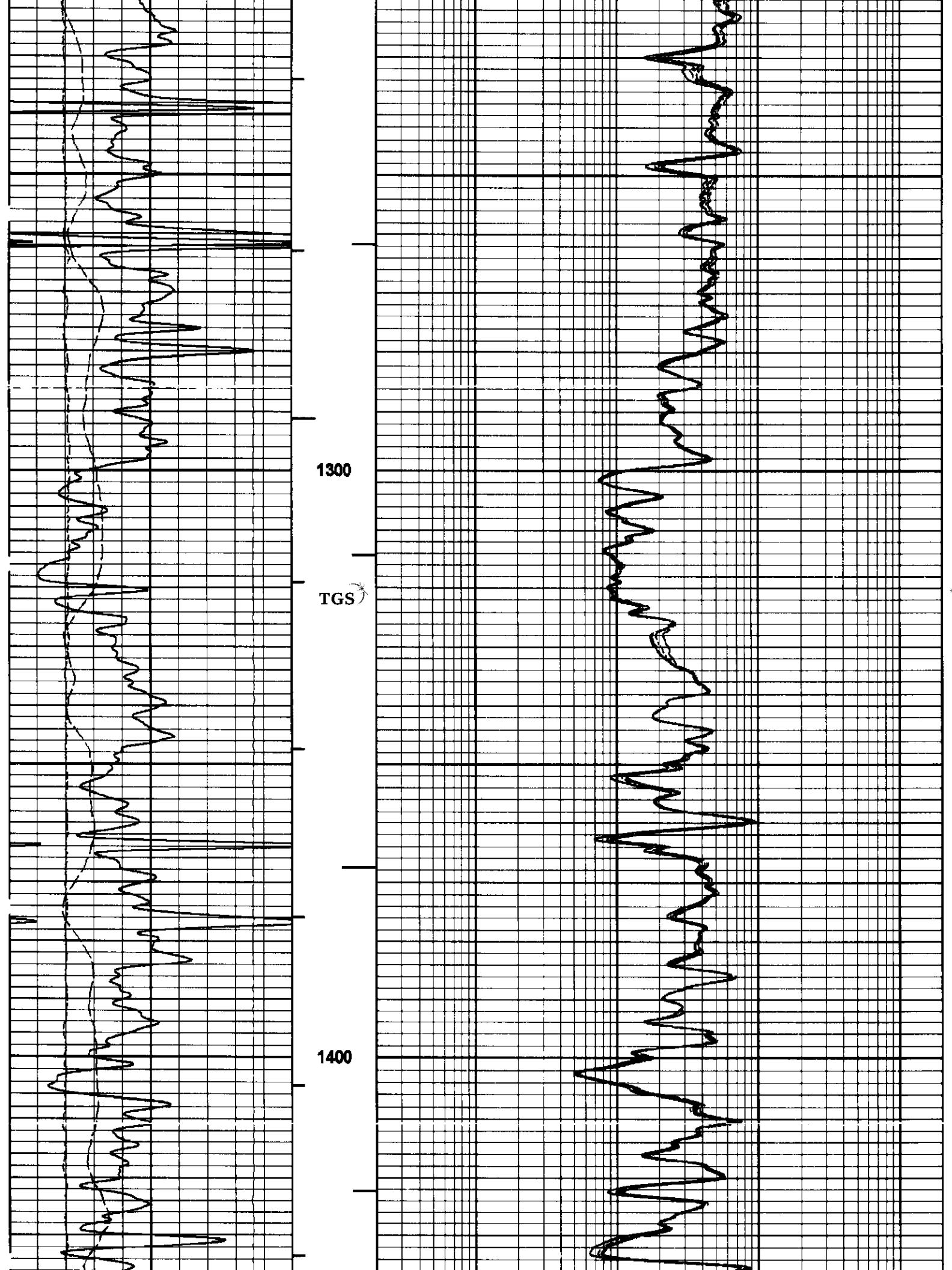
A2D

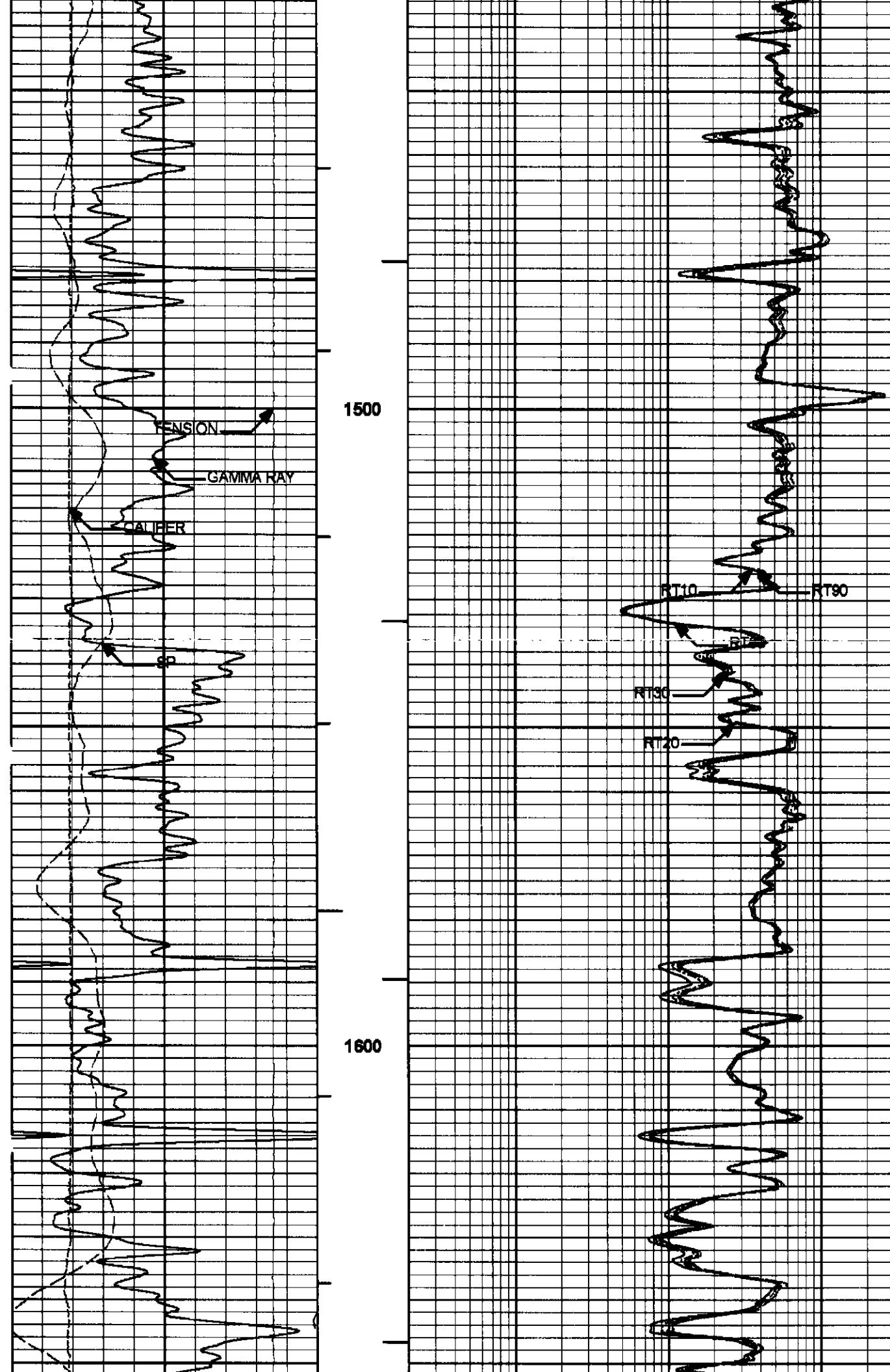


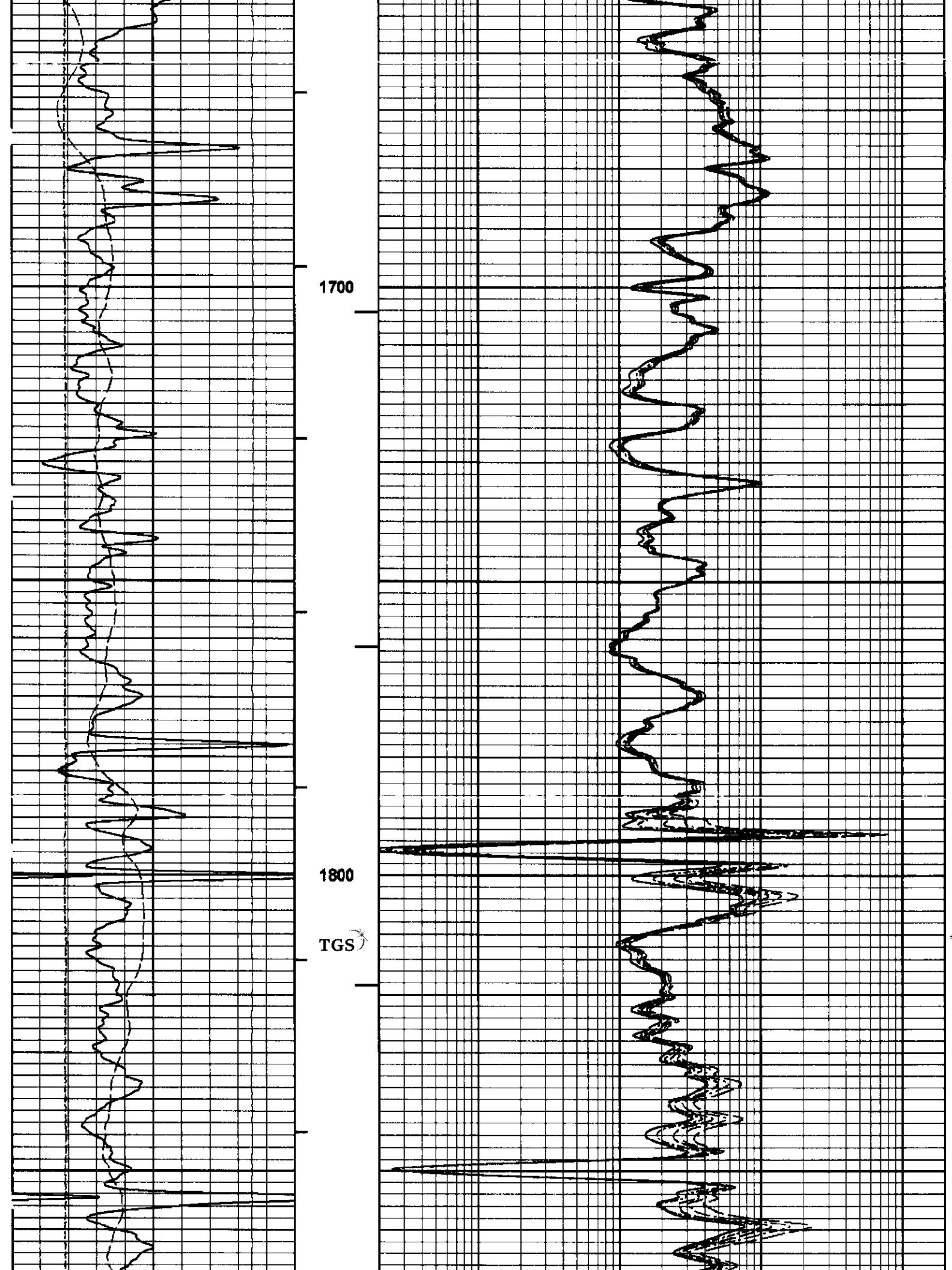


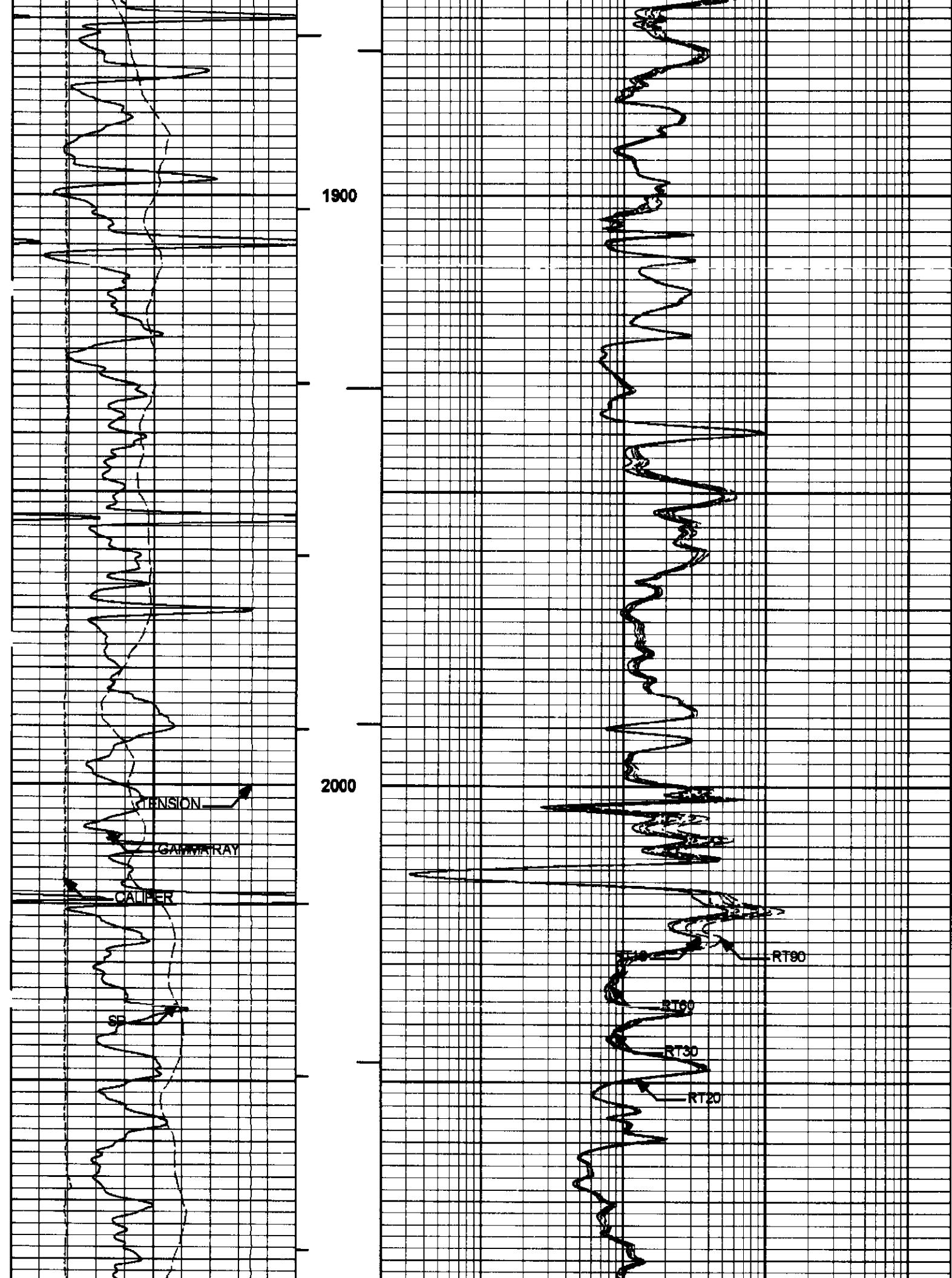


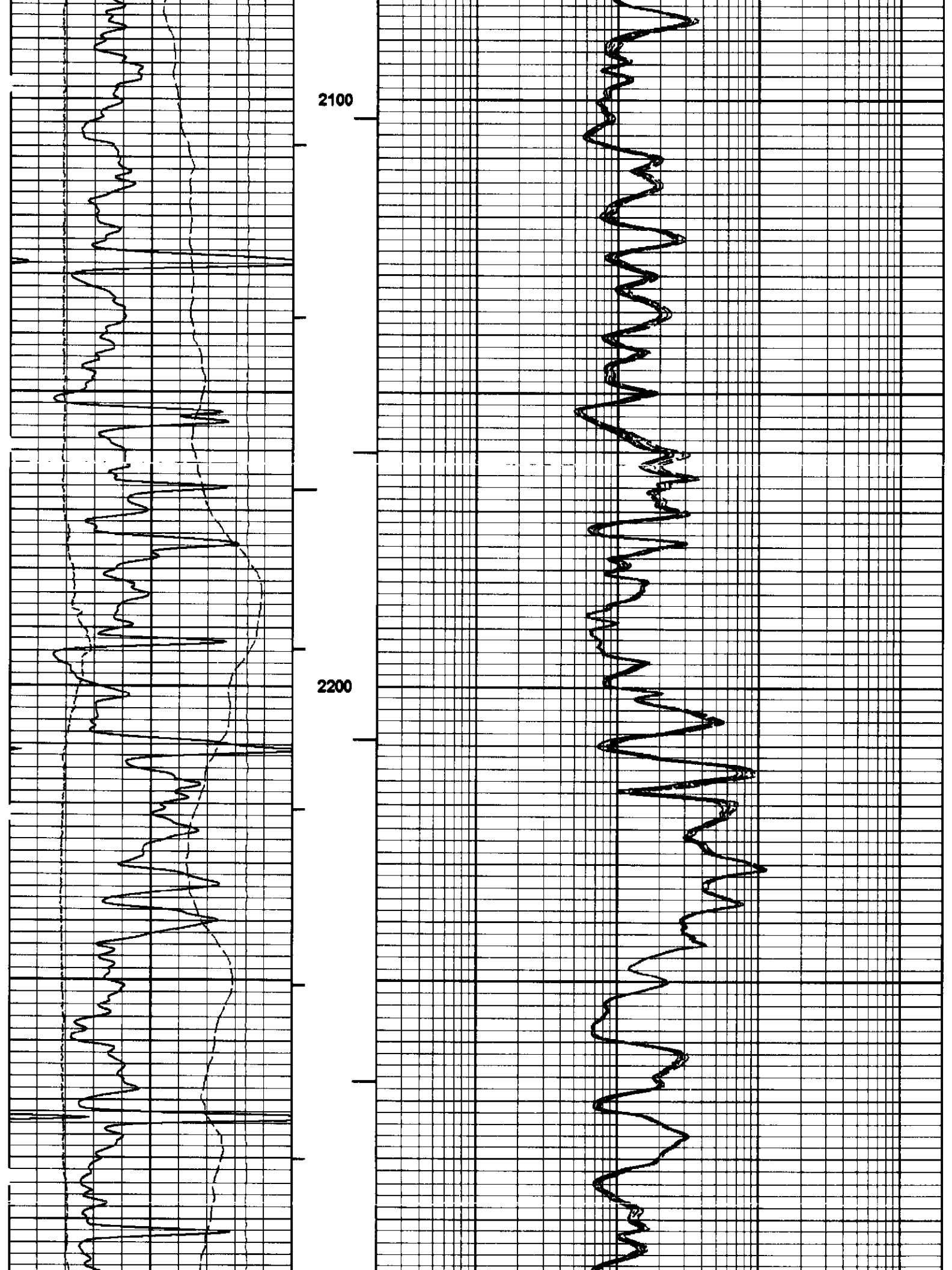




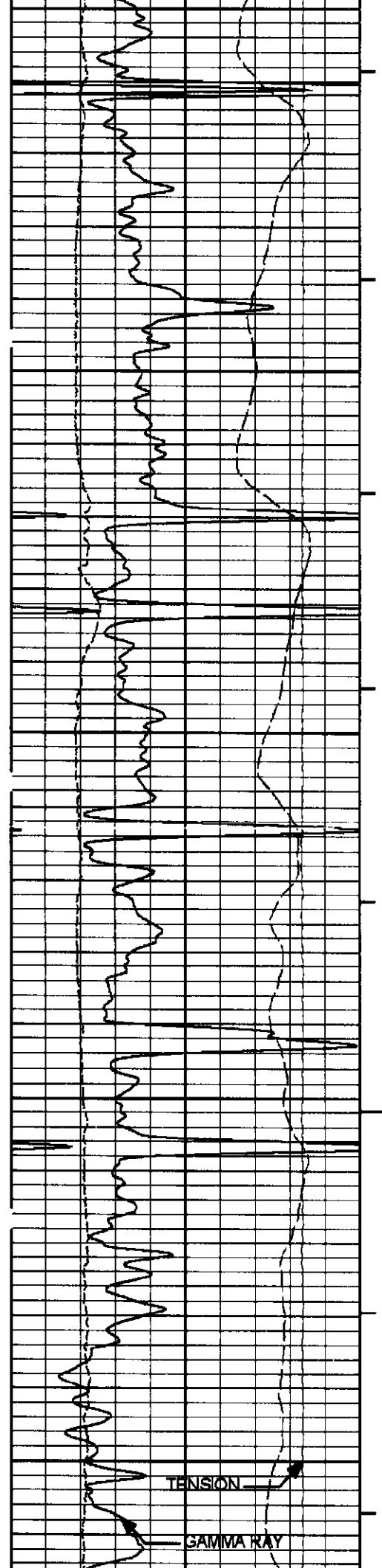








2300



2500

GAMMA RAY

CALIPER

SP

2600

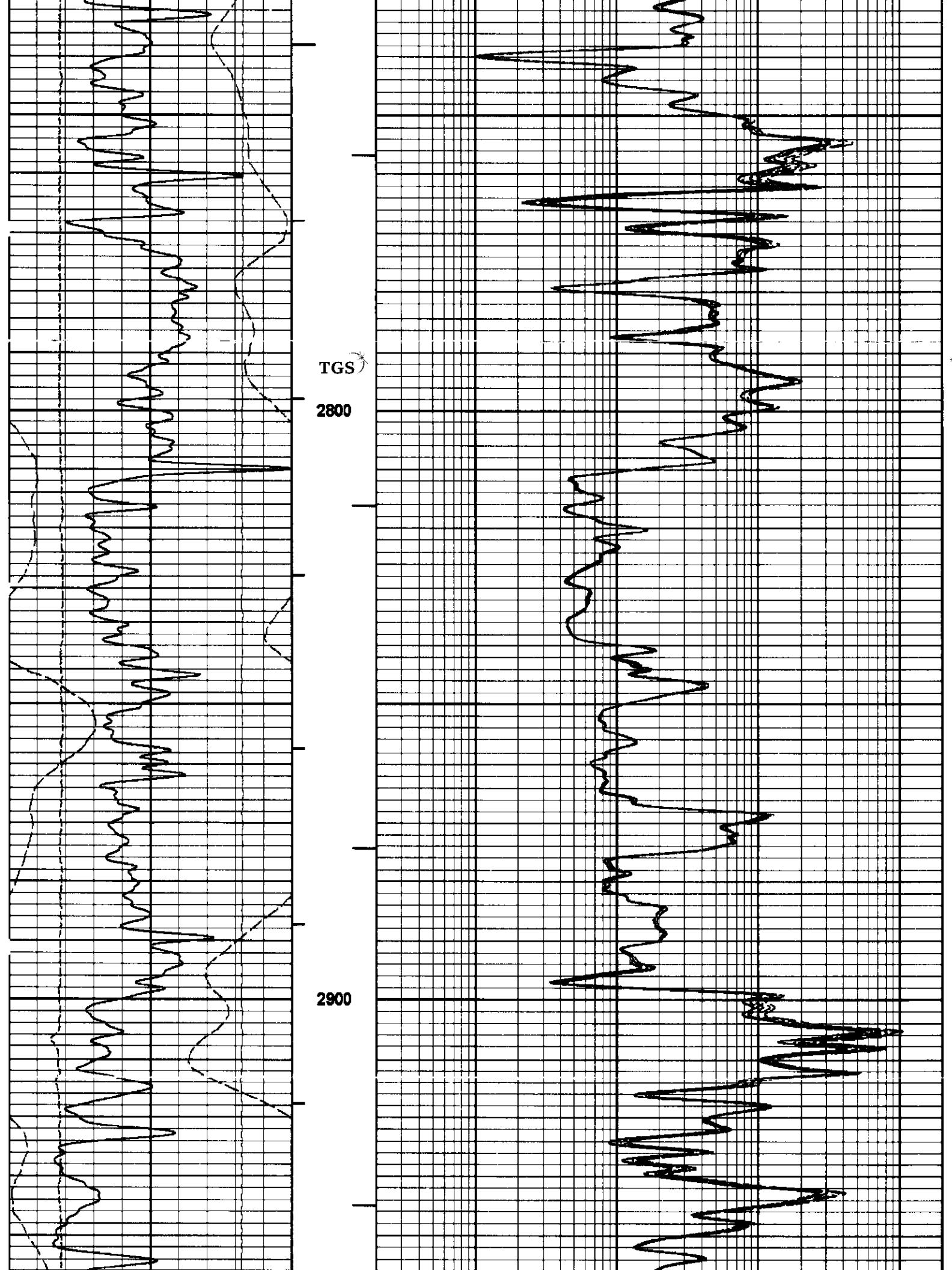
2700

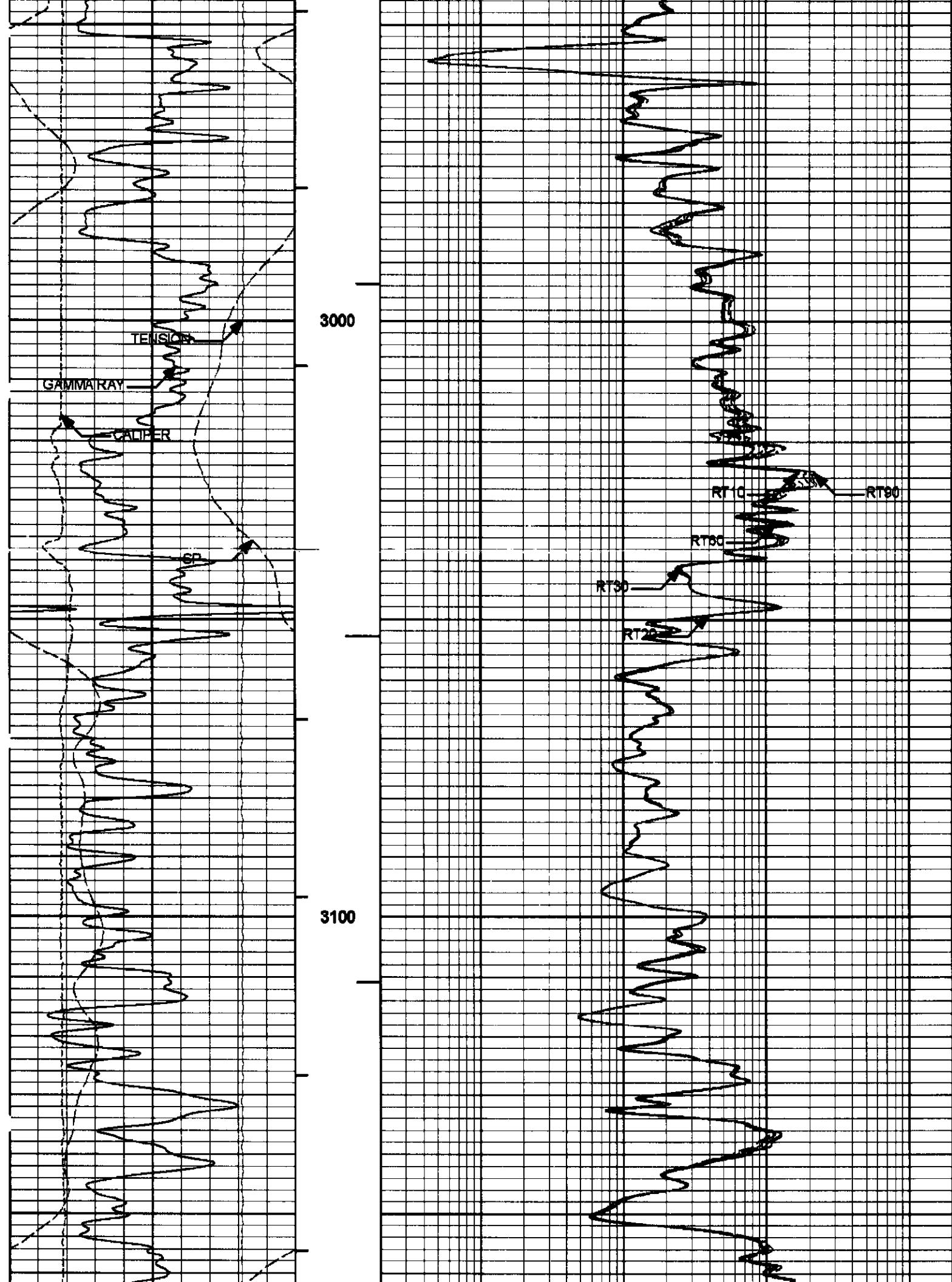
RT10 RT80

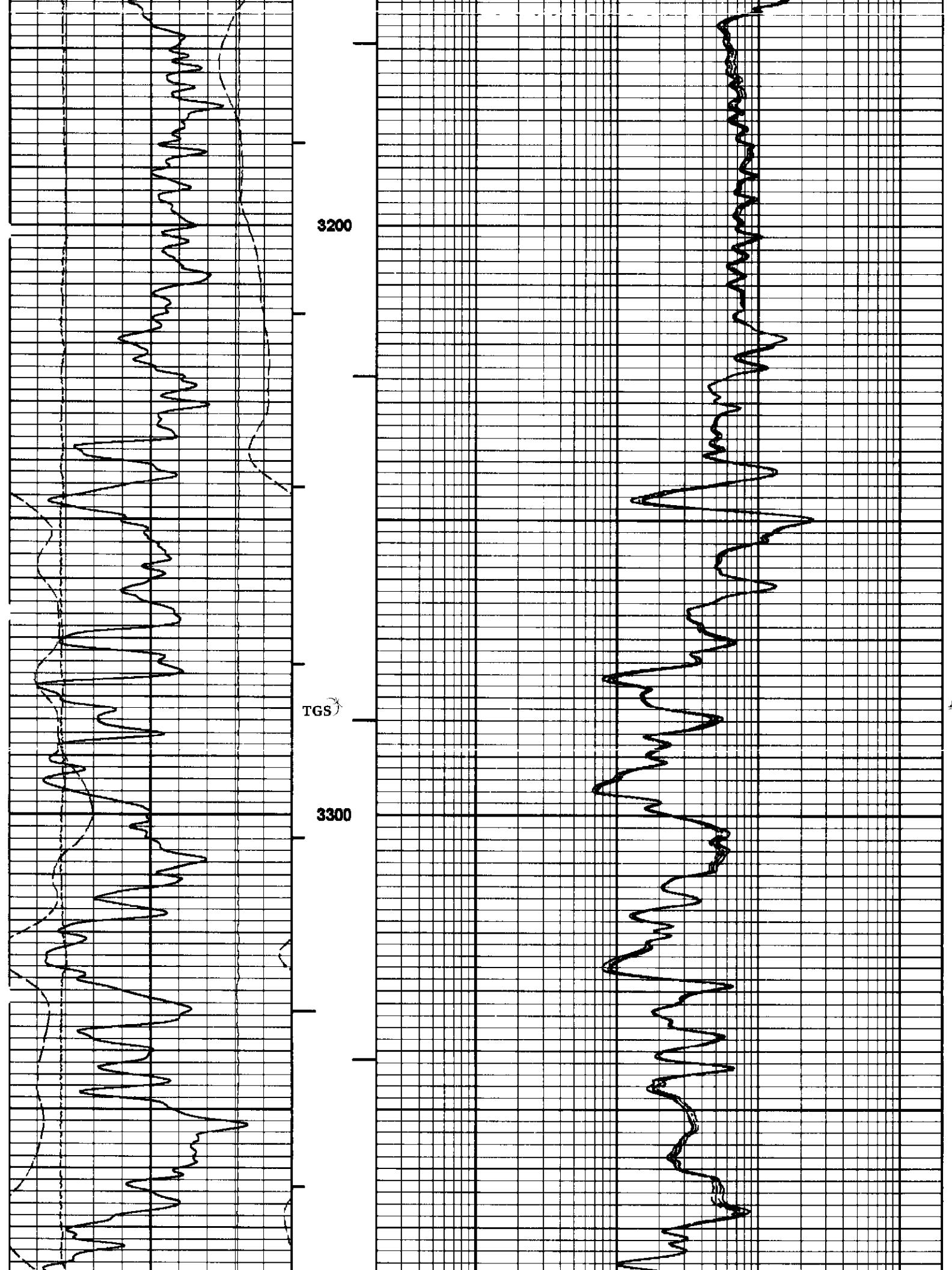
RT60

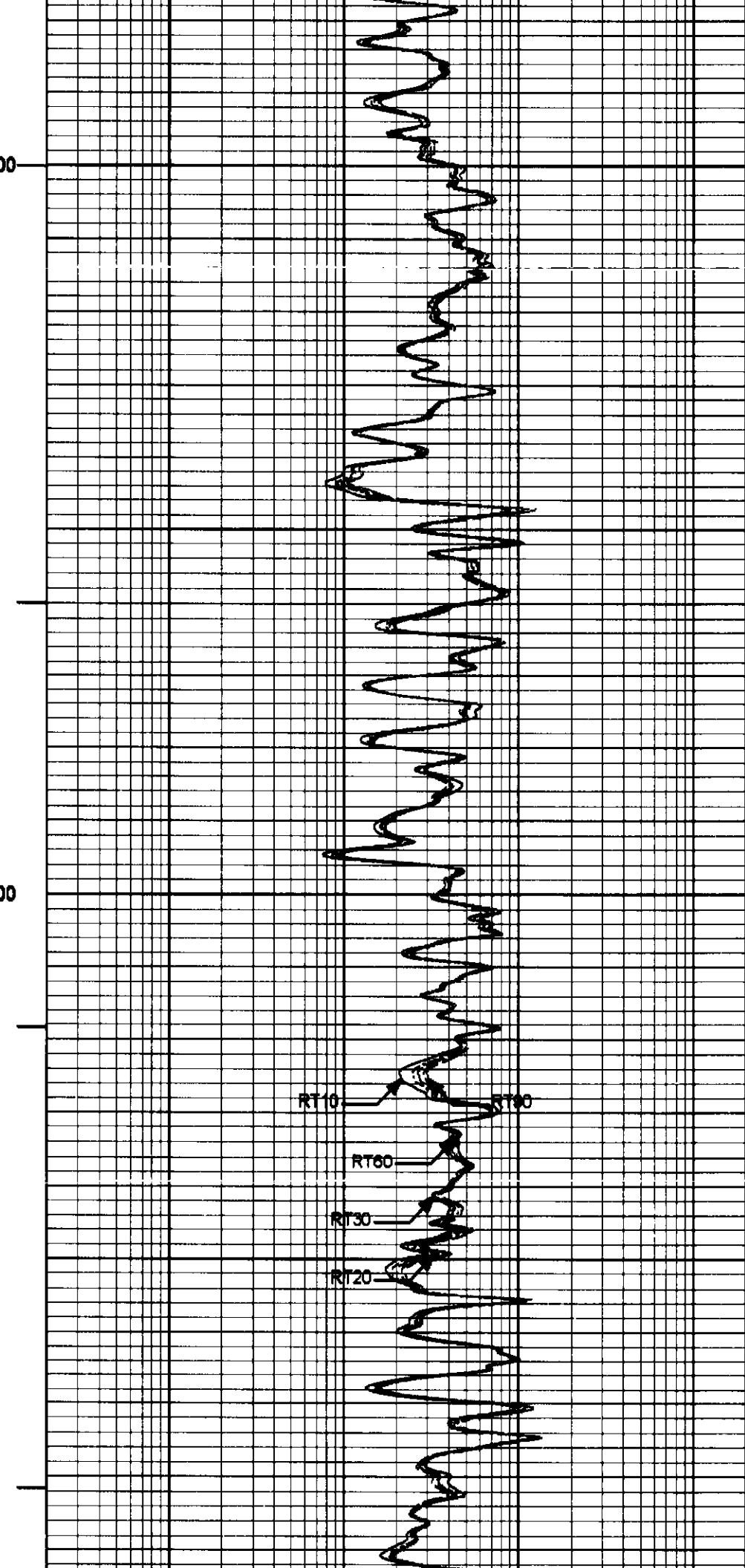
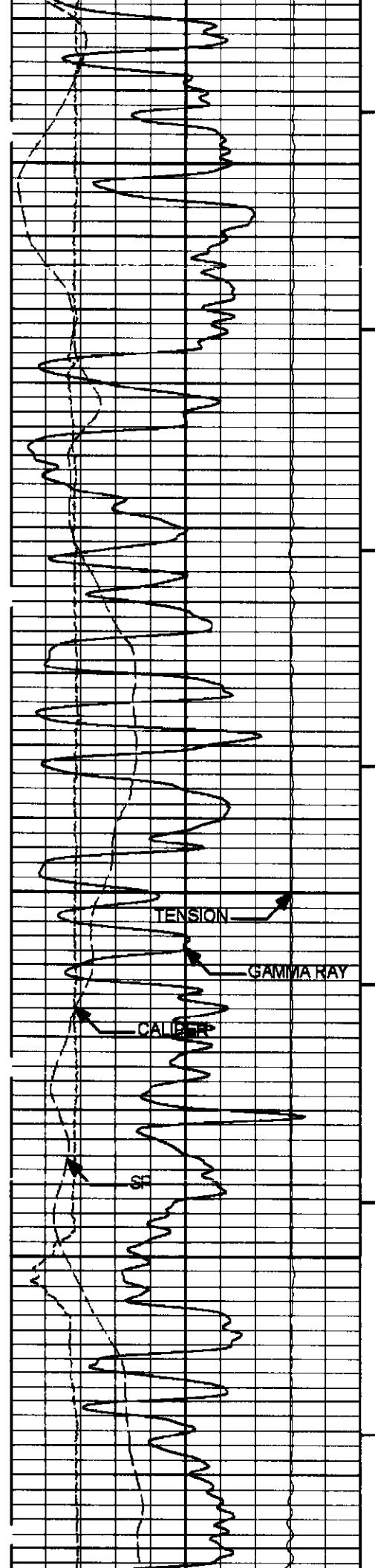
RT30

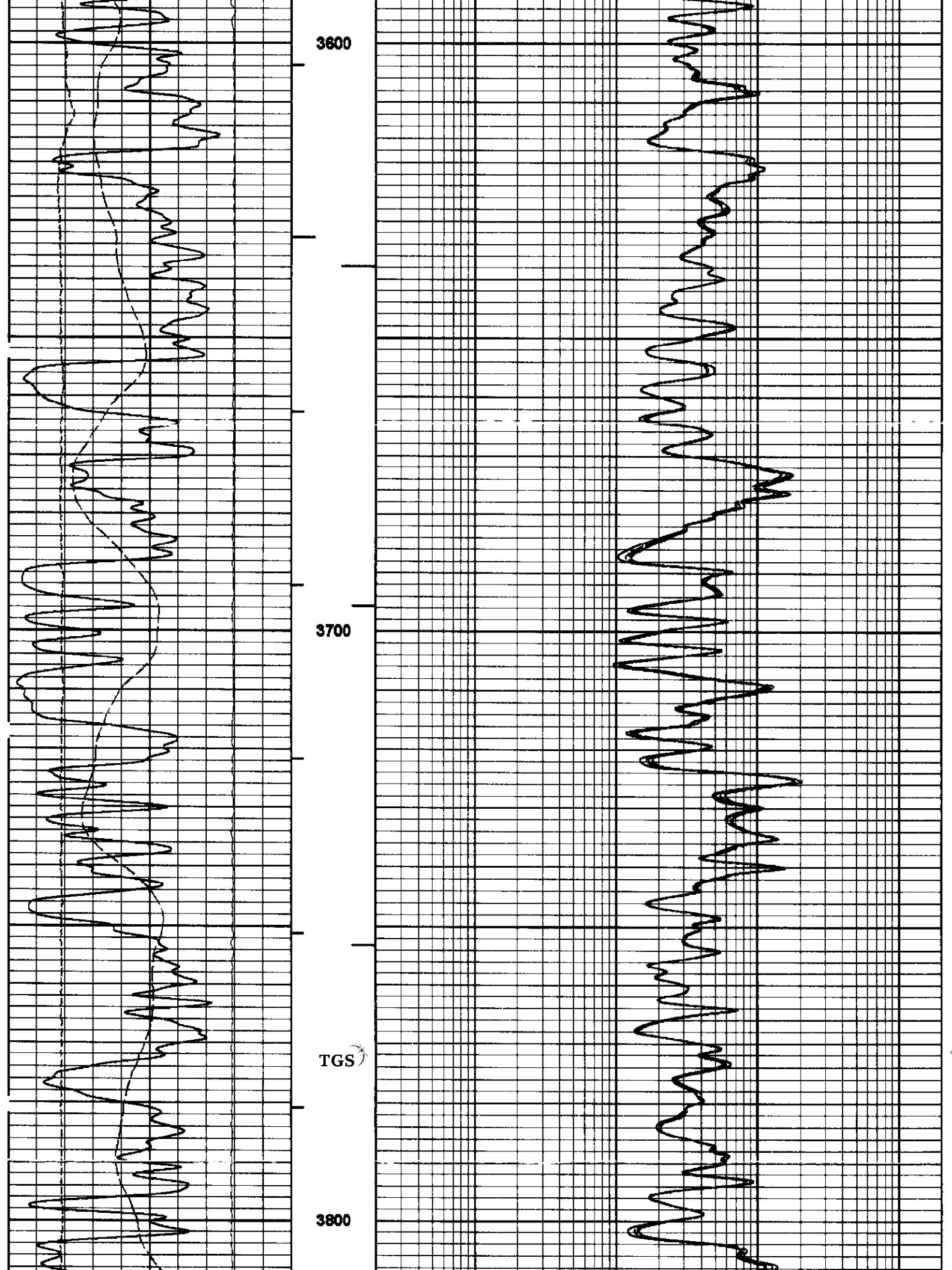
RT20

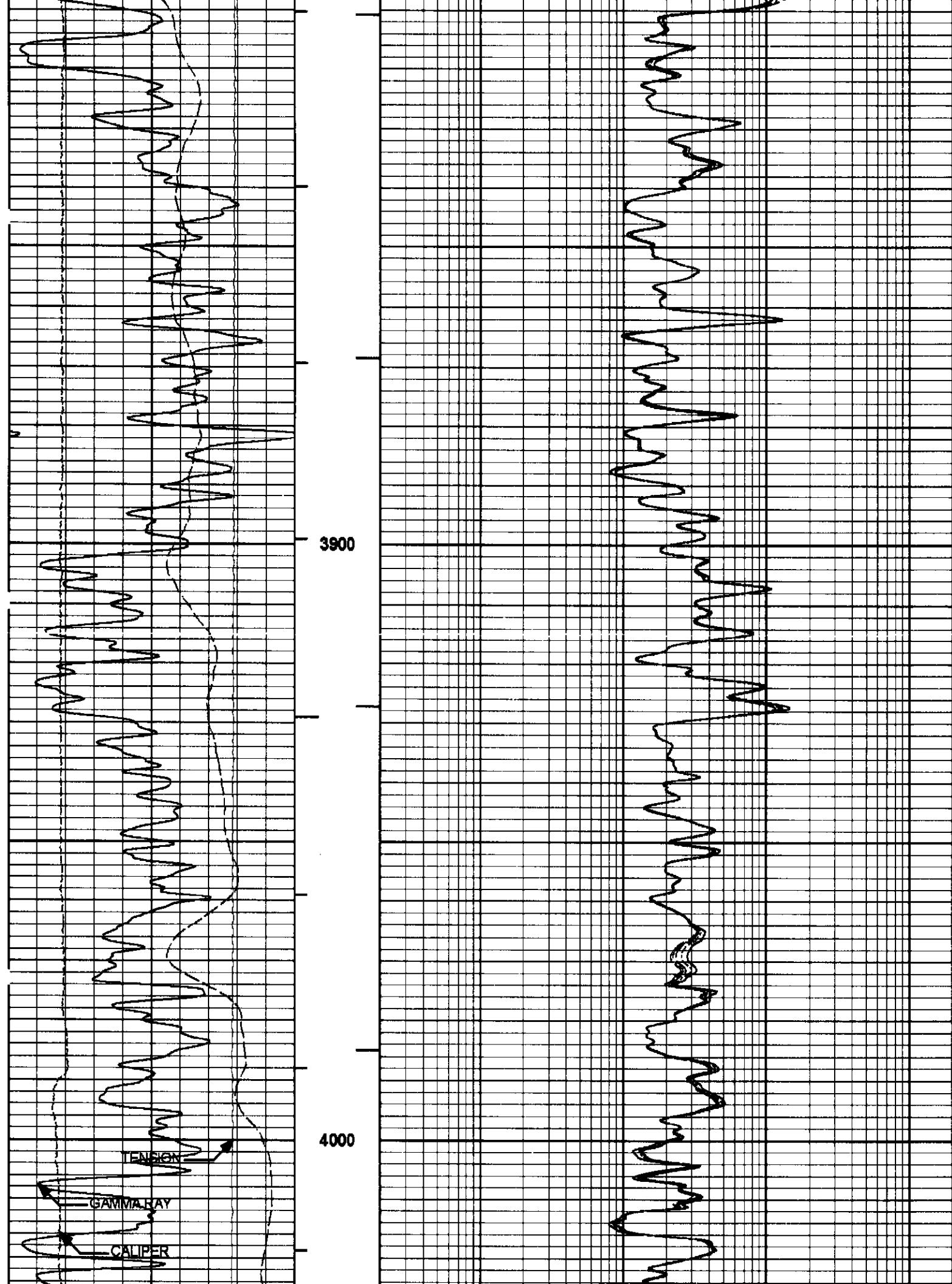


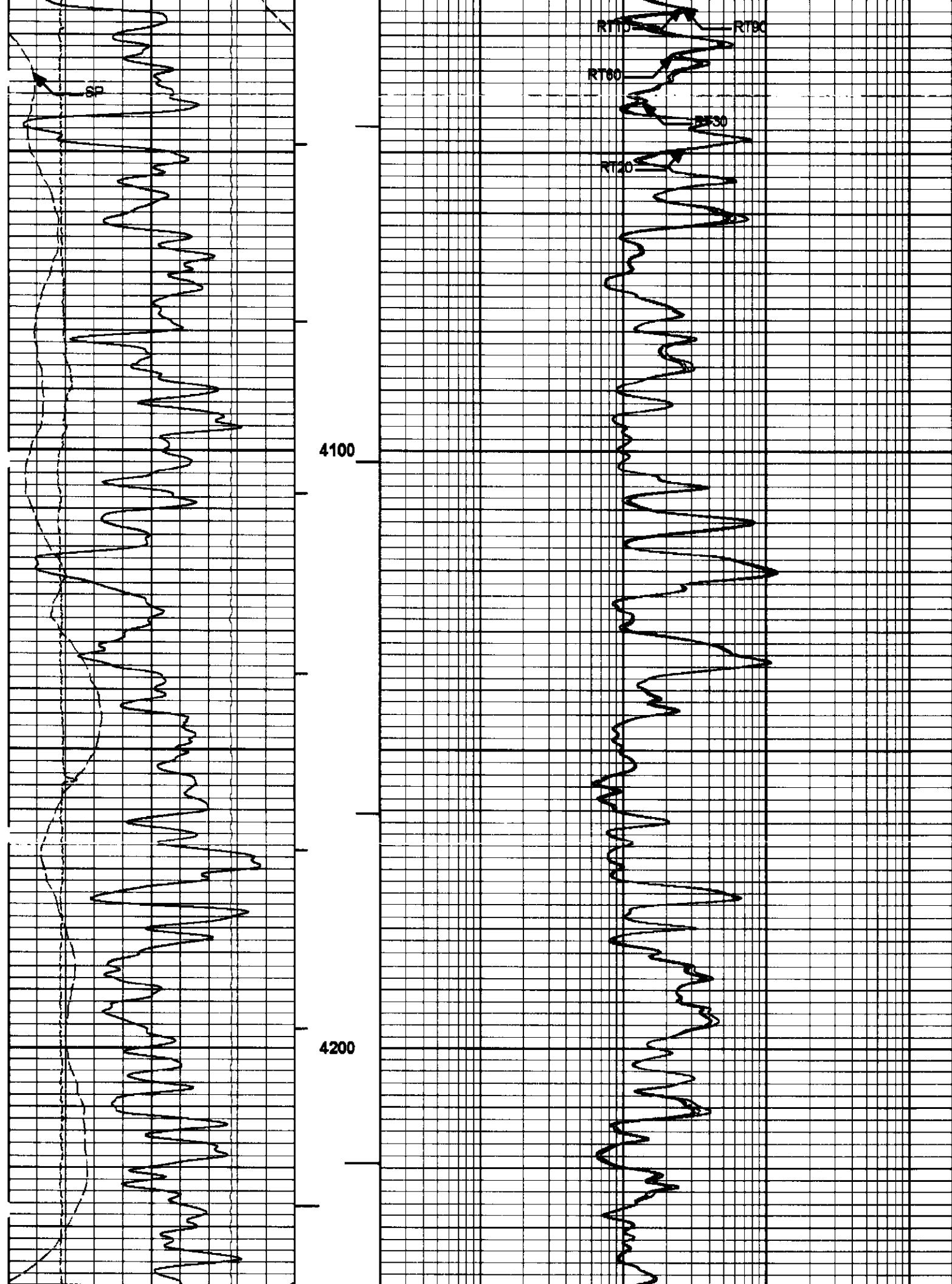


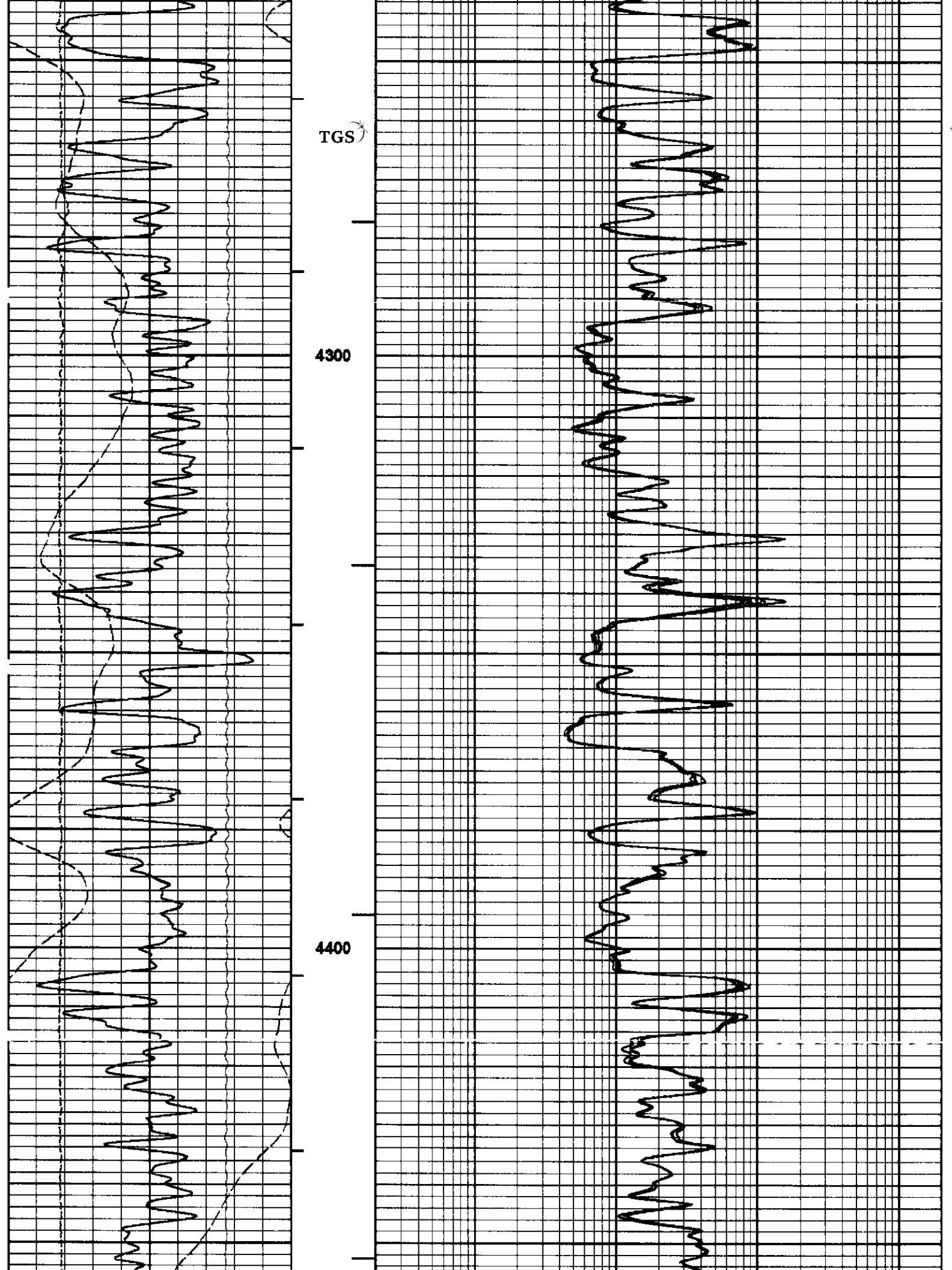


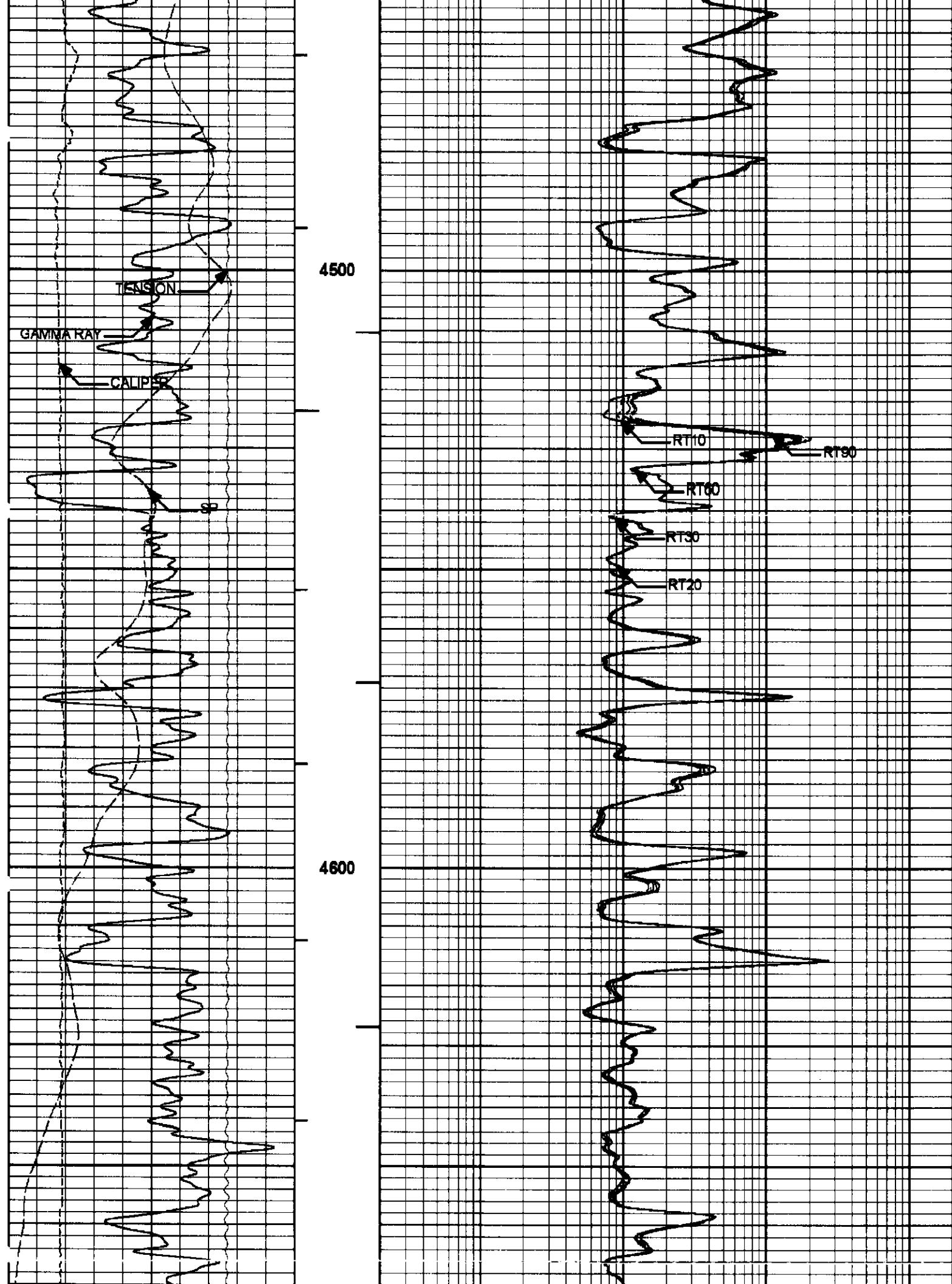


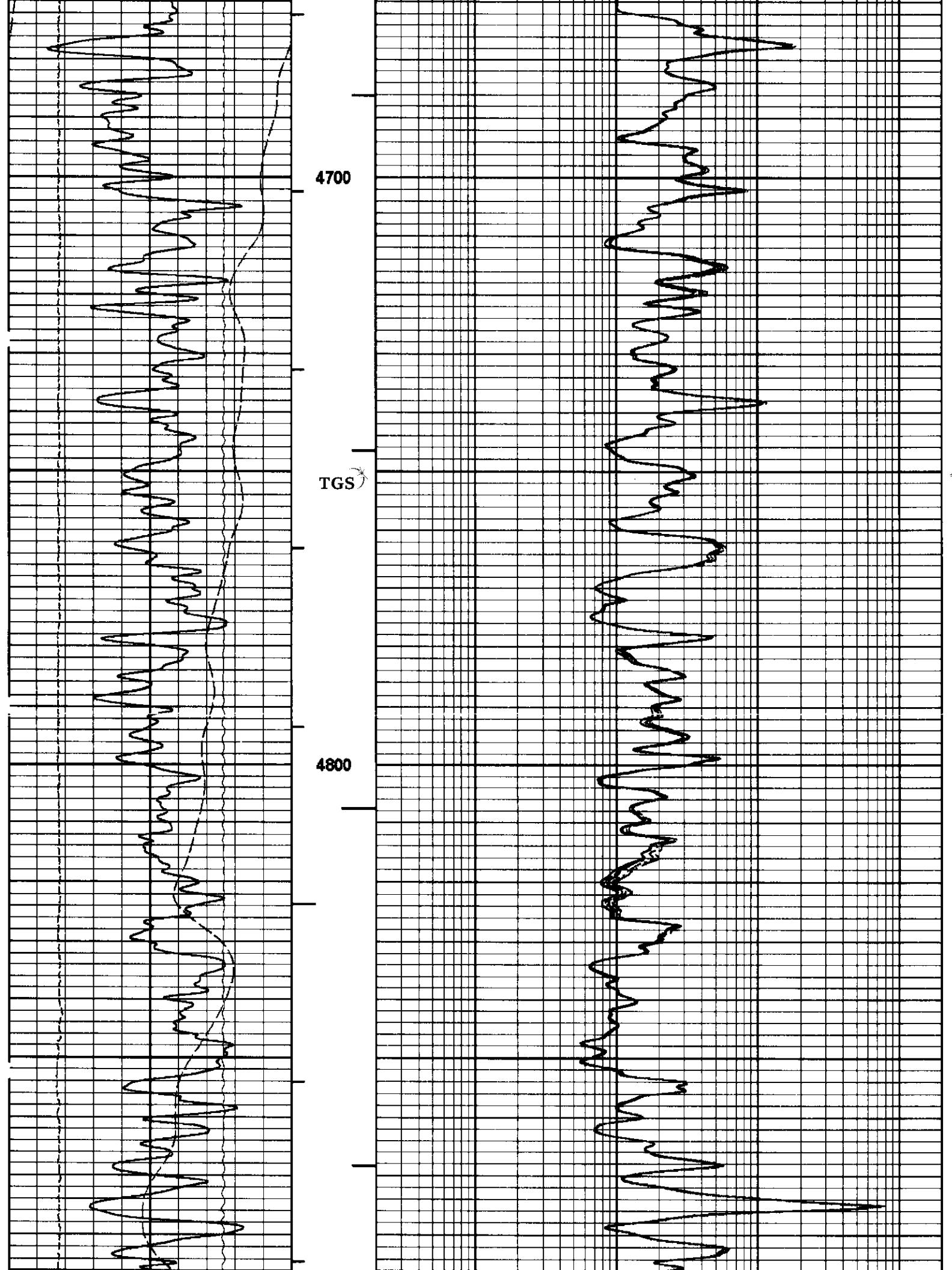


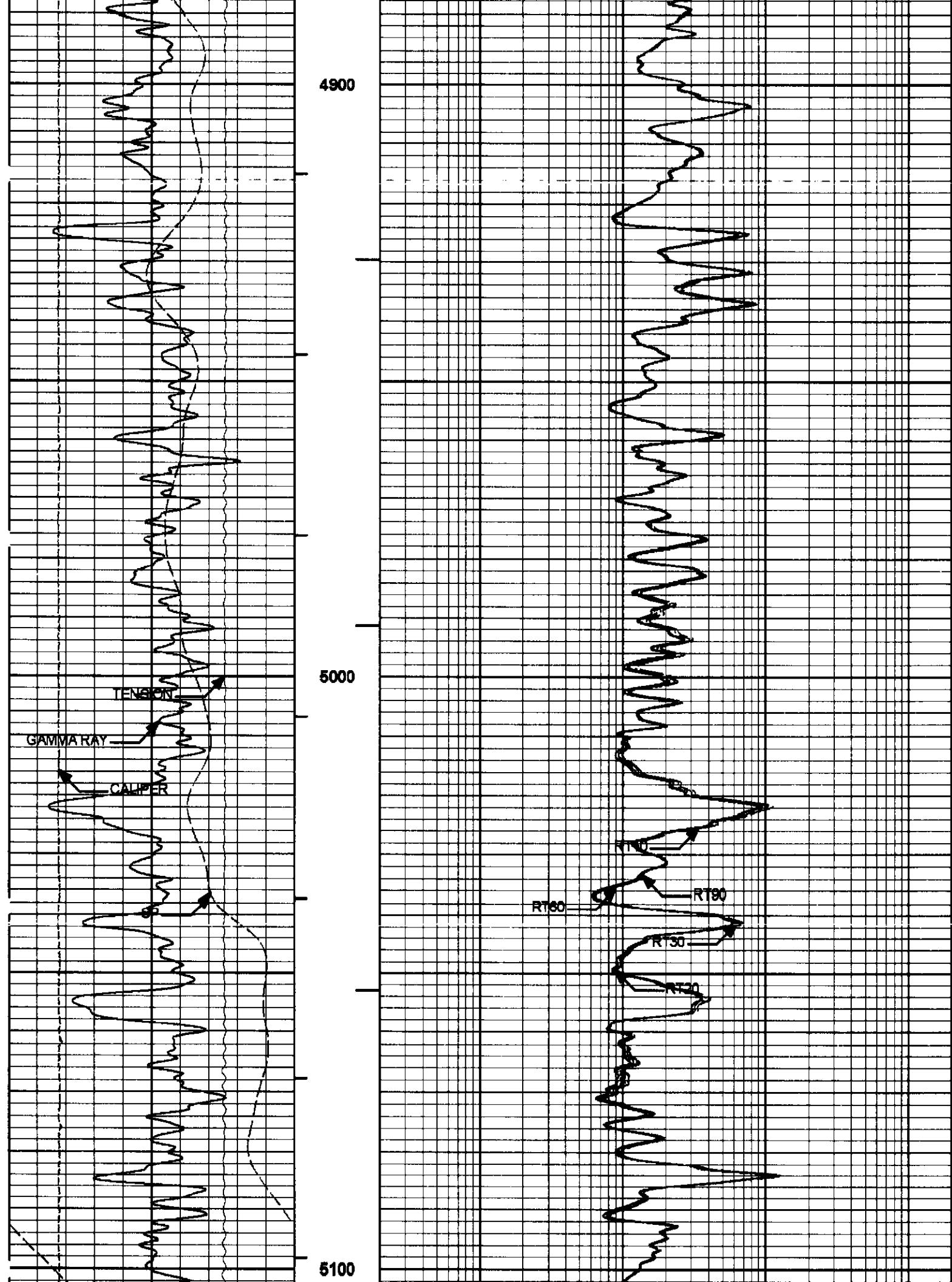


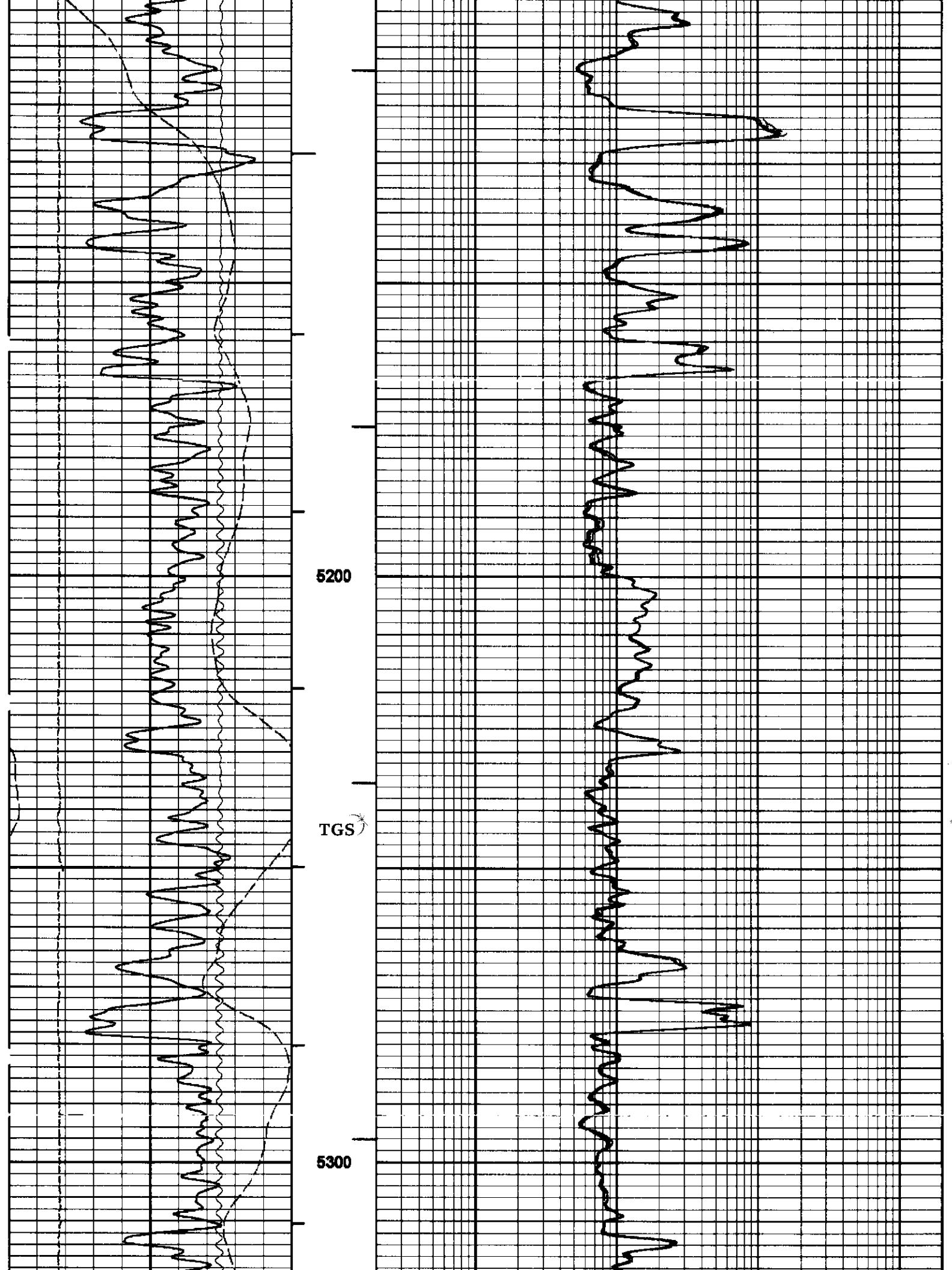


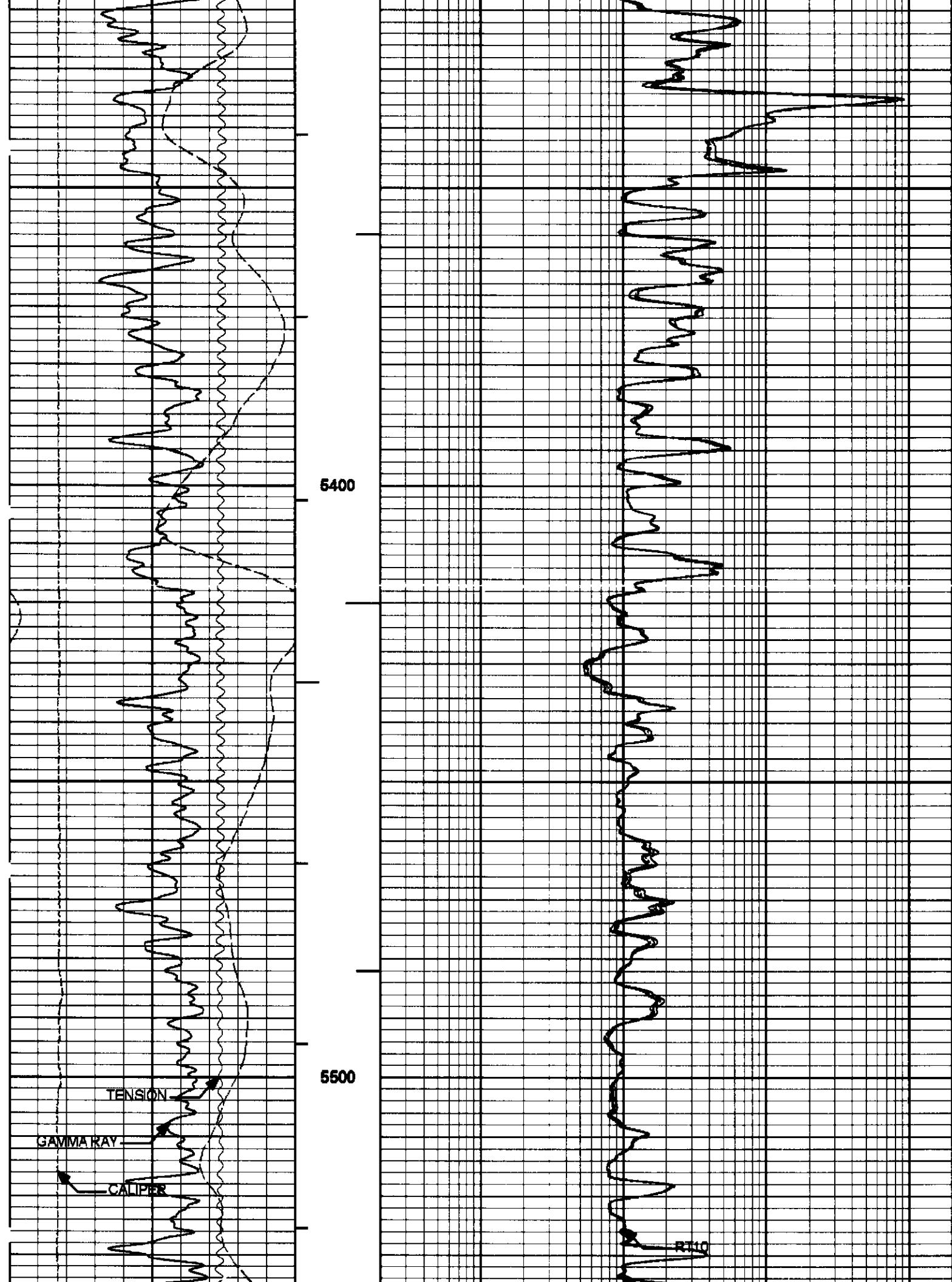


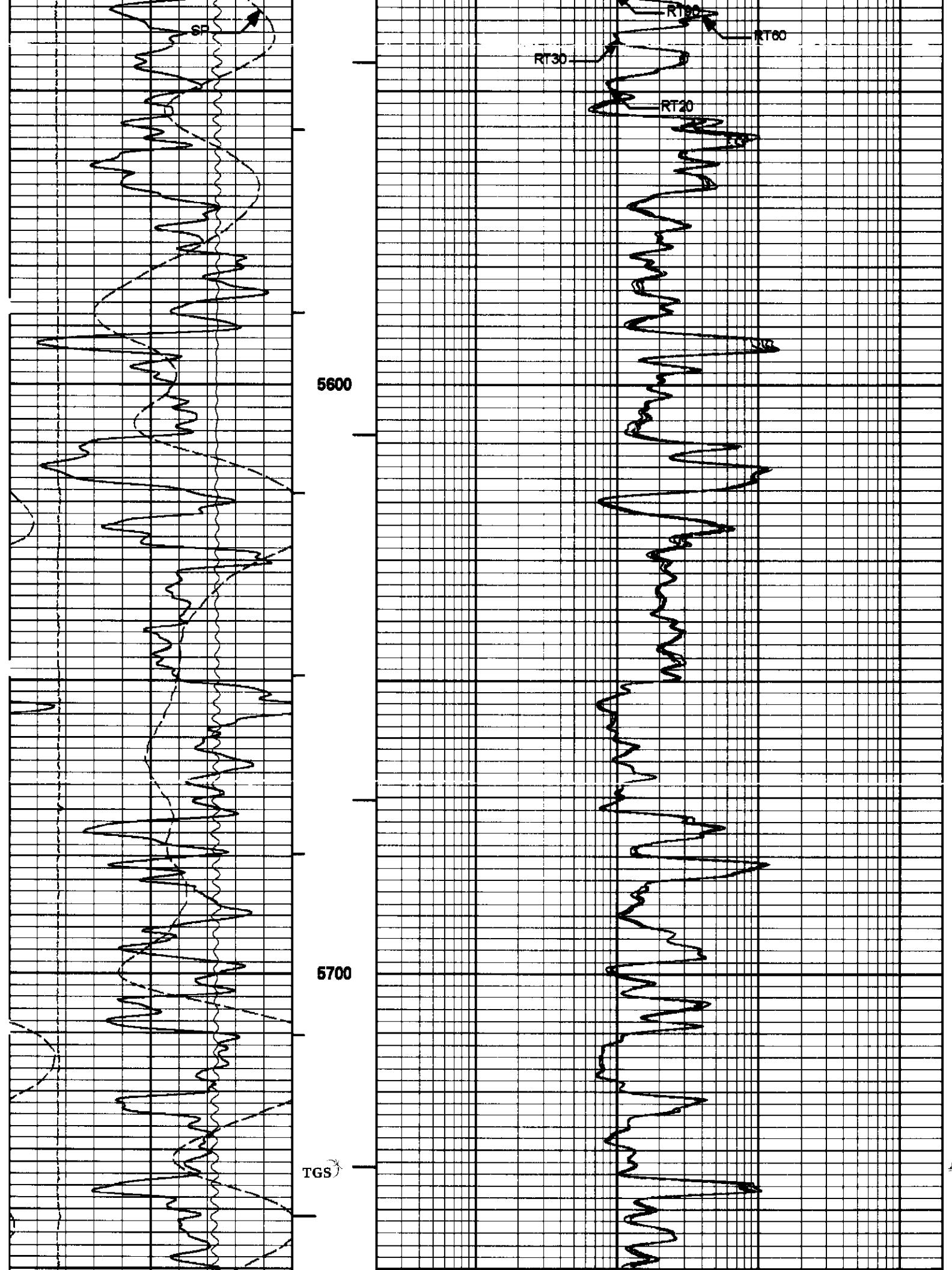


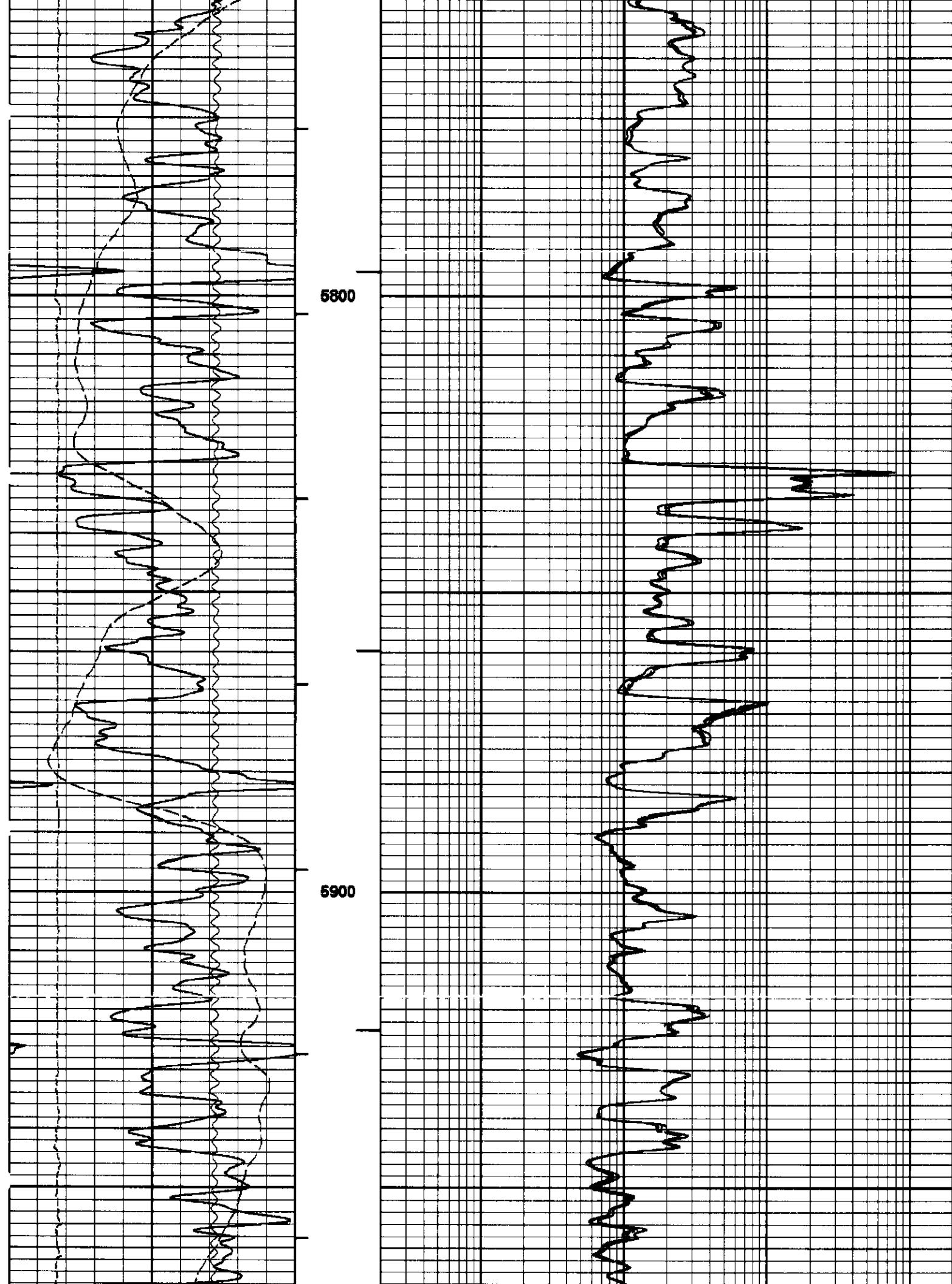


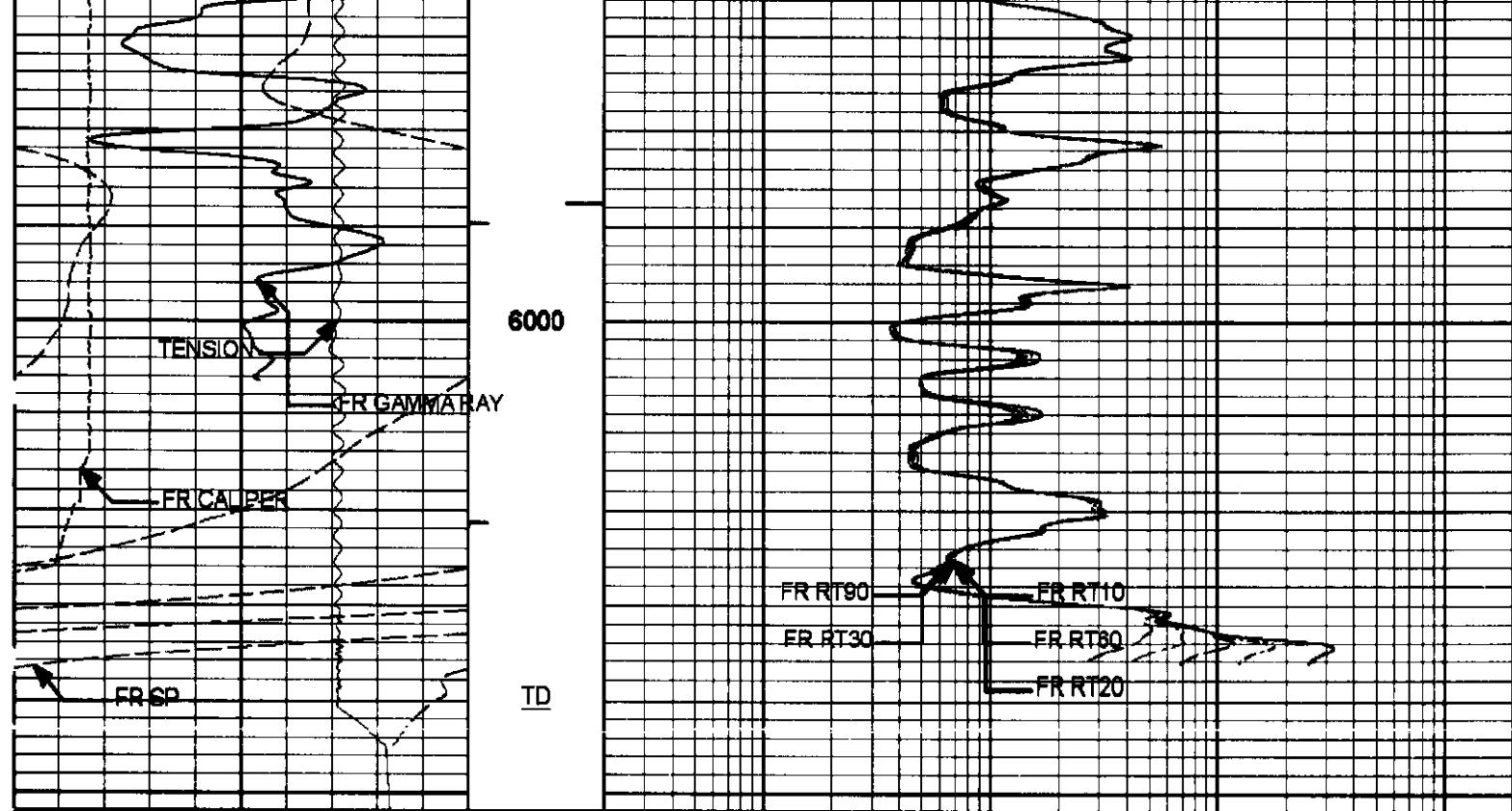












10000	TENSION	0	1 : 240	0.2	RT10	2000
	pounds				ohm-mm	
0	SP	100	BHV	0.2	RT20	2000
	millivolts				ohm-mm	
6	CALIPER	16	AHV	0.2	RT30	2000
	inches				ohm-mm	
0	GAMMA RAY	200		0.2	RT60	2000
	api				ohm-mm	
				0.2	RT80	2000
					ohm-mm	

HALLIBURTON

Plot Time: 17-Jun-10 21:48:40
 Plot Range: 96 ft to 6051.92 ft
 Data: PETRO_Ute_20_11\Well Based\MAIN\
 Plot File: \\RESV_ACRT_SIN_M

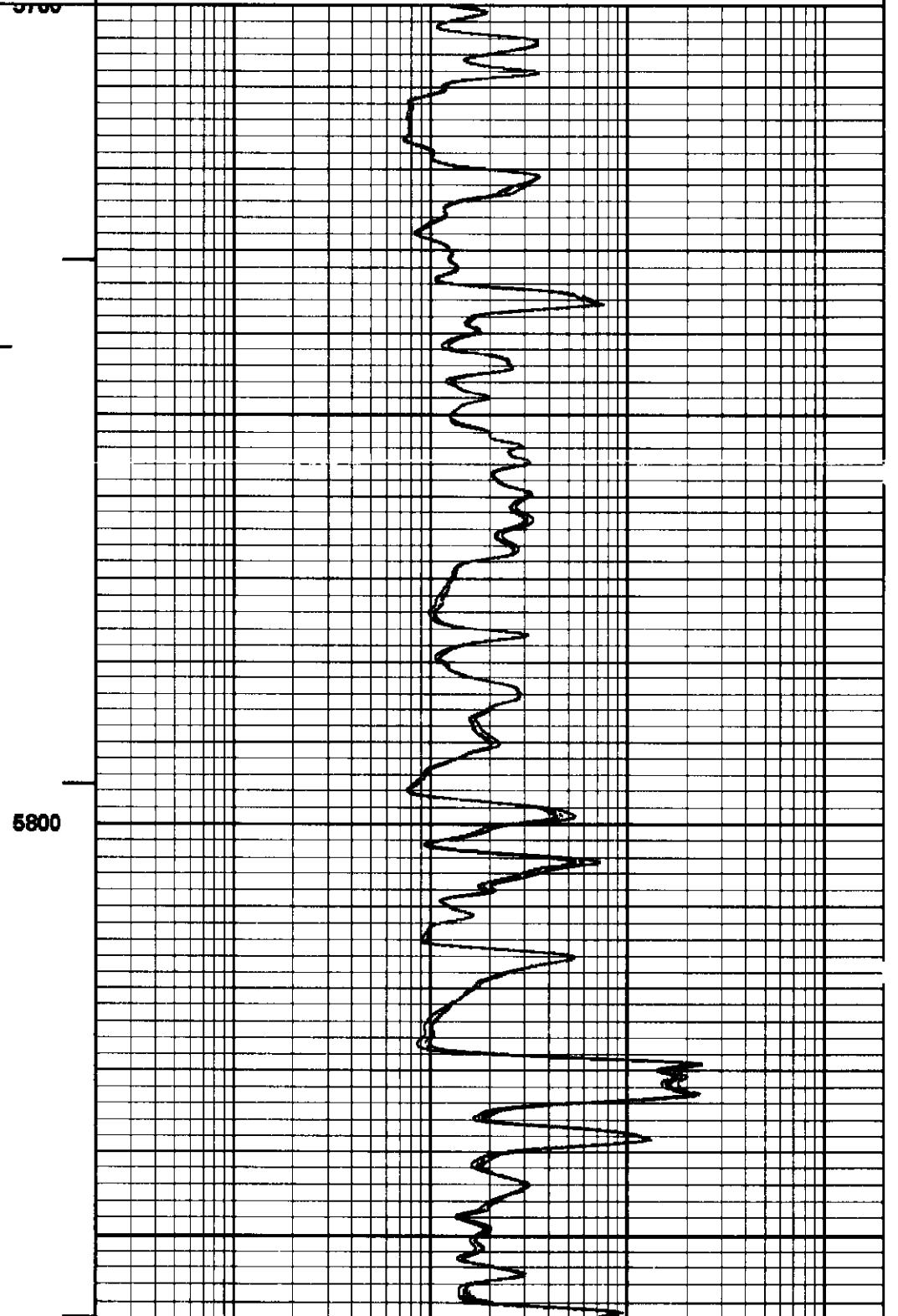
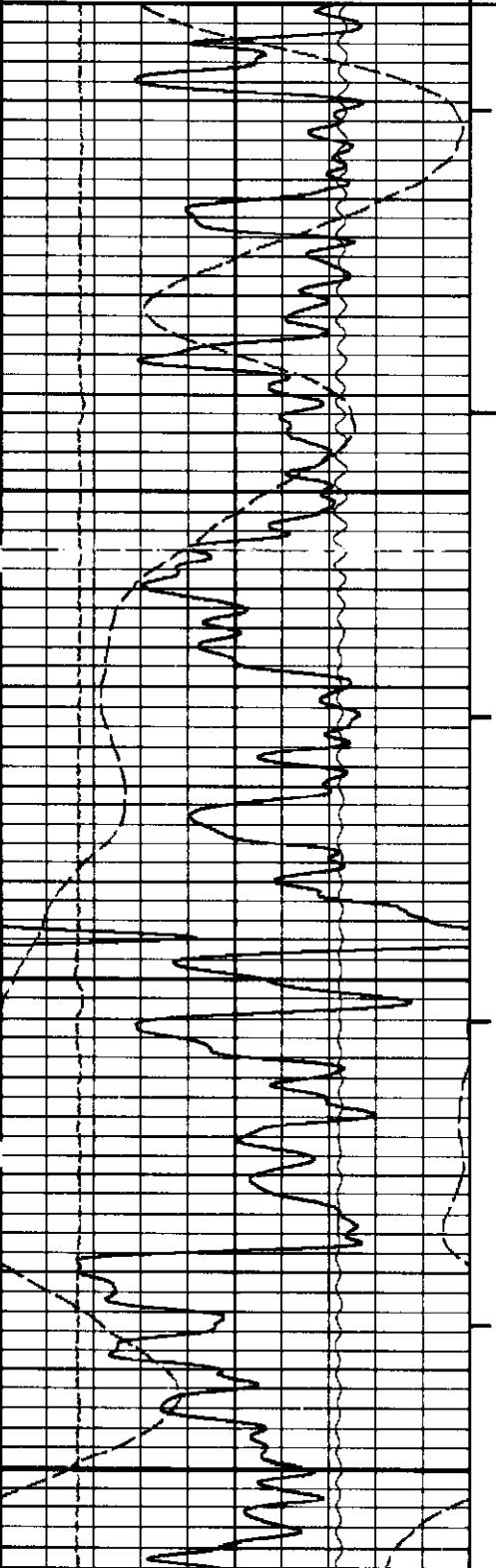
MAIN PASS 5" = 100'

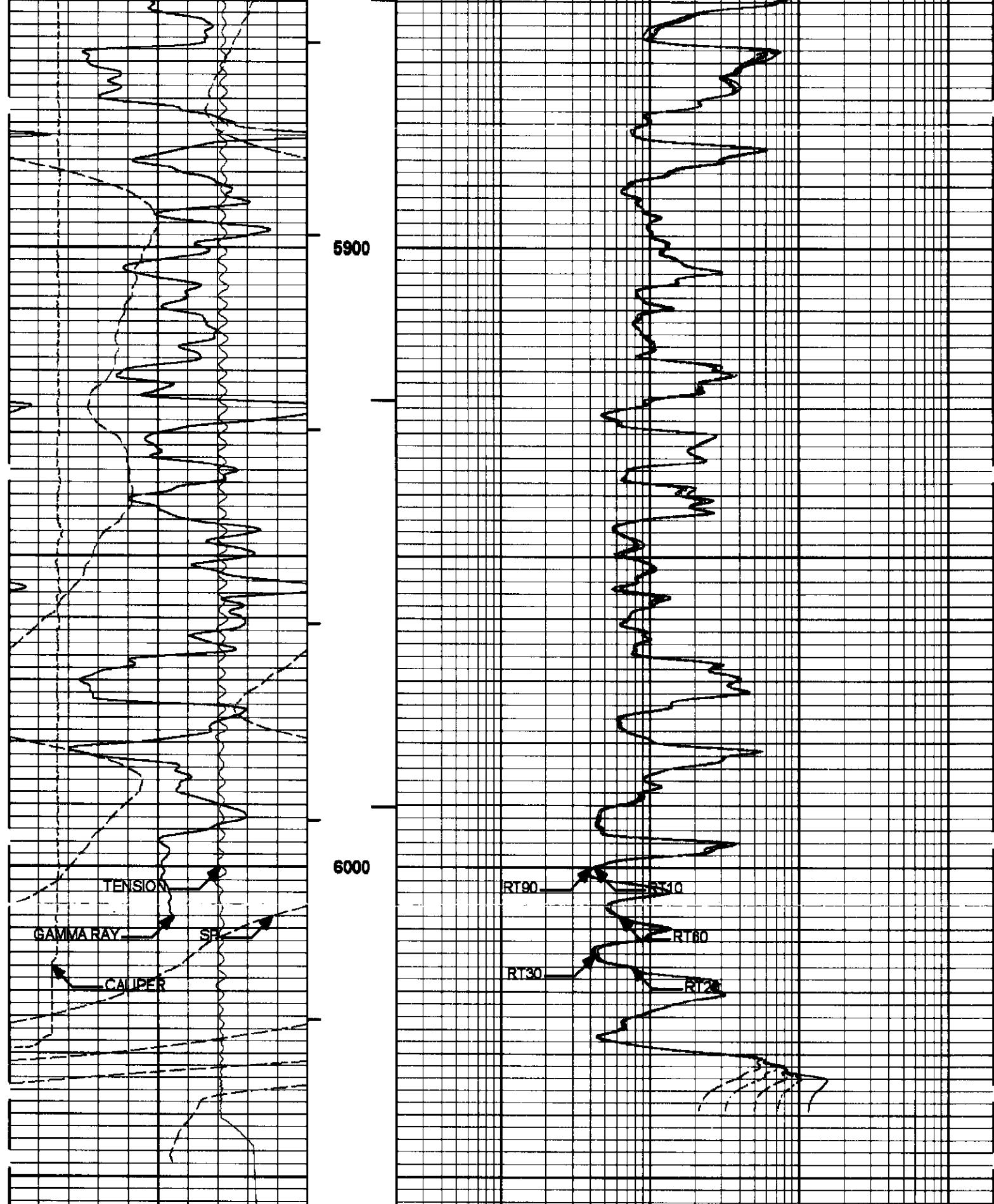
HALLIBURTON

Plot Time: 17-Jun-10 21:48:40
 Plot Range: 5700 ft to 6054.92 ft
 Data: PETRO_Ute_20_11\Well Based\RPT\
 Plot File: \\RESV_ACRT_SIN_R

REPEAT SECTION 5" = 100'

		0.2	RT90	2000
0	GAMMA RAY	200	ohm-m	
	api			
6	CALIPER	16	0.2	RT60
	Inches		ohm-m	2000
0	SP	100	0.2	RT30
	millivolts		ohm-m	2000
10000	TENSION	0	0.2	RT20
	pounds		ohm-m	2000
		1 : 240	RT10	2000
		FT.	ohm-m	





10000	TENSION	0	1 : 240	0.2	RT10	2000
	pounds		FT.		ohm-m	
0	SP	100	BHV	0.2	RT20	2000
	millivolts				ohm-m	

6	CALIPER	18	AHV	0.2	RT30	2000
	inches				ohm-m	
0	GAMMA RAY	200		0.2	RT60	2000
	api				ohm-m	
				0.2	RT90	2000
					ohm-m	

HALLIBURTON

Plot Time: 17-Jun-10 21:48:41
 Plot Range: 5700 ft to 6054.92 ft
 Data: PETRO_Ute_20_11Well Based(RPT)\
 Plot File: \\RESU_ACRT_SIN_R

REPEAT SECTION 5" = 100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11277435 Reference Calibration Date: 14-Apr-10 14:54:05

Engineer: K. NORMAND Calibration Date: 15-May-10 10:40:23

Software Version: WL INSITE R2.6.1 (Build 9) Calibration Version: 1

Calibrator Source S/N: TB-271

Calibrator API Reference: 236.00 api

Measurement	Measured	Calibrated	Units
Background	33.2	33.1	api
Background + Calibrator	270.4	269.1	api
Calibrator	235.8	236.0	api

ACCELEROMETER SHOP CALIBRATION

Tool Name: GTET - 11277435 Reference Calibration Date: 14-Apr-10 15:00:20

Engineer: M. LECUREUX Calibration Date: 16-May-10 10:30:05

Software Version: WL INSITE R2.6.1 (Build 9) Calibration Version: 1

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-444.18	-265.73	-16375.91	cnts

Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	0.0100 - -0.0100
Offset	-0.022	-----
Noise	0.0007	0.0030

Orientation	Measured	Calibrated
Horizontal	0.01	0.00
Vertical	0.99	1.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10813523 Reference Calibration Date: 14-Apr-10 10:18:05

Engineer: M. LECUREUX

Calibration Date: 18-May-10 11:52:47

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Logging Source S/N: 21480B

Tank Serial Number: 105045

Reference value assigned to Tank: 52.630

Snow Block S/N: BOND_SB

Calibration Tank Water Temperature: 67 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.978	0.980	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2158	0.2163	0.0005	+/- 0.0020
Calibrated Ratio:	9.89	9.91	0.015	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0631	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name: DSNT - 10913523

Reference Calibration Date: 18-May-10 11:52:47

Engineer: G. ALLEN

Calibration Date: 17-Jun-10 09:58:06

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Logging Source S/N: 21480B

Snow Block S/N: BOND_SB

NEUTRON FIELD-CHECK SUMMARY

Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0631	0.0655	0.0024 +/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT - 10995353

Reference Calibration Date: 14-Apr-10 09:58:15

Engineer: M. LECUREUX

Calibration Date: 18-May-10 11:13:16

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Logging Source S/N: 5246GW

Aluminum Block S/N: 8261

Density: 2.602g/cc

Pe: 3.182

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0246	1.0295	0.90 - 1.10
Near Dens Gain	1.0072	1.0059	0.90 - 1.10
Near Peak Gain	1.0076	1.0232	0.90 - 1.10
Near Lith Gain	0.9935	1.0128	0.90 - 1.10
Far Bar Gain	1.0088	1.0077	0.90 - 1.10
Far Dens Gain	1.0048	1.0022	0.90 - 1.10
Far Peak Gain	1.0012	0.9982	0.90 - 1.10
Far Lith Gain	0.9857	0.9828	0.90 - 1.10
Near Bar Offset	-0.2902	-0.3308	NONE
Near Dens Offset	-0.1534	-0.1367	NONE
Near Peak Offset	-0.1697	-0.2980	NONE
Near Lith Offset	-0.0762	-0.2349	NONE
Far Bar Offset	-0.1445	-0.1318	NONE
Far Dens Offset	-0.1206	-0.0966	NONE
Far Peak Offset	-0.1293	-0.1062	NONE
Far Lith Offset	-0.0419	-0.0249	NONE
Near Bar Background	906.62	907.28	700 - 1450
Near Dens Background	300.41	298.42	230 - 480
Near Peak Background	130.48	130.03	100 - 210
Near Lith Background	160.39	159.99	125 - 260
Far Bar Background	466.75	465.50	450 - 900
Far Dens Background	184.25	186.57	175 - 345
Far Peak Background	73.58	73.08	70 - 140
Far Lith Background	76.05	75.34	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.688	0.006	+/- 0.015
Pe	2.632	2.594	-0.038	+/- 0.150
ALUMINUM				
Density (g/cc)	2.598	2.602	0.004	+/- 0.01500
Pe	3.189	3.182	-0.007	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0027	+/- 0.0110	-0.0035	+/- 0.0140
Magnesium Block	0.0003	+/- 0.0110	-0.0018	+/- 0.0140
Aluminum Block	-0.0002	+/- 0.0110	-0.0002	+/- 0.0140
Resolution	9.95	6.00 - 11.50	9.45	6.00 - 11.50
Internal Verifier(B+D+P+L)	1496	1200 - 2700	800	800 - 1700

TGS A2D

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name: SDLT - 10895353

Reference Calibration Date: 18-May-10 11:13:16

Engineer: G. ALLEN

Calibration Date: 17-Jun-10 09:47:42

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

Pad Temperature: 62.5 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1495.711	1489.584	-6.147	15.585
Far (B+D+P+L) cps	800.492	797.088	-3.404	15.670
Near Resolution	9.95	10.11	0.160	0.50
Far Resolution	9.45	9.55	0.100	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10895353

Reference Calibration Date: 14-Apr-10 09:28:34

Engineer: M. LECUREUX

Calibration Date: 18-May-10 11:26:57

Software Version: WL INSITE R2.6.1 (Build 9)

Calibration Version: 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-2486.86	-2018.32	-7000.00 - -1000.00
Pad Gain	0.0003855	0.0003814	0.000200 - 0.000600
Arm Offset	-3318.35	-3198.51	-5000.00 - 3000.00
Arm Gain	0.0005775	0.0005553	0.000300 - 0.000700
Arm Power	-0.000005603	-0.000004958	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION				
Small Ring (in)	1.85	2.00	0.15	+/- 0.20
Medium Ring (in)	3.62	3.75	0.13	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.32	6.50	0.18	+/- 0.20
Medium Ring (in)	8.14	8.25	0.11	+/- 0.20
Large Ring (in)	15.03	15.00	-0.03	+/- 0.20

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
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SDLT CALIPER FIELD CALIBRATIONTool Name: **SDLT - 10895353** Reference Calibration Date: **18-May-10 11:26:57**Engineer: **G. ALLEN** Calibration Date: **17-Jun-10 09:51:27**Software Version: **WL INSITE R2.6.1 (Build 9)** Calibration Version: **1****MEASURED CALIPER VALUES**

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.83	0.08	+/- 0.10
Ring Diameter	8.25	8.24	-0.01	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATIONTool Name: **ACRT - 12073842** Reference Calibration Date: **26-May-10 15:34:36**Engineer: **K. NORMAND** Calibration Date: **26-May-10 10:43:08**Software Version: **WL INSITE R2.6.1 (Build 9)** Calibration Version: **1****TYPICAL GAIN RANGE**

Subarray	R12KHz		R36KHz		R72KHz	
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0098	1.05	0.95	1.0148	1.05
A2 (50")	0.95	1.0157	1.05	0.95	1.0215	1.05
A3 (29")	0.95	1.0111	1.05	0.95	1.0166	1.05
A4 (17")	0.95	1.0066	1.05	0.95	1.0100	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0091	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9974	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz		R36KHz		R72KHz	
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	0.023	2	-6	-3.680	-2
A2 (50")	-7	-1.872	-2	-6	-3.564	-2
A3 (29")	-27	-13.482	-9	-9	-4.385	-3
A4 (17")	-180	-104.284	-60	-45	-35.626	-15
A5 (10")	N/A	N/A	N/A	-150	-93.107	-50
A6 (6")	N/A	N/A	N/A	175	215.937	525

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.8767	1.3
36K	1.0	1.2025	20
72K	1.0	1.5634	20

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.999	1.05

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11277436						
Gamma Ray Calibrator	236.0	-----	-----	0.0	+/- 9.00	api
DSNT-10813523						
Snow-Block Porosity	0.0631	0.0655	-----	-0.0024	+/- 0.0150	decp
SDLT-10896353						
Near(B+D+P+L)	1495.711	1489.564	-----	6.147	+/- 15.585	cps
Far(B+D+P+L)	800.492	797.088	-----	3.404	+/- 15.670	cps
Pad Extension	3.75	3.83	-----	-0.08	+/- 0.10	in
Ring Diameter	8.25	8.24	-----	0.010	+/- 0.15	in
ACRI-12079842						
Mud Cell	0.999	-----	-----	0.000	-----	ohm-m

Data: PETRO_UYE_20_110001 IQ_TRIPLENDLE

Date: 17-Jun-10 20:04:42

HALLIBURTON

CUSTOMER EVENT LOG

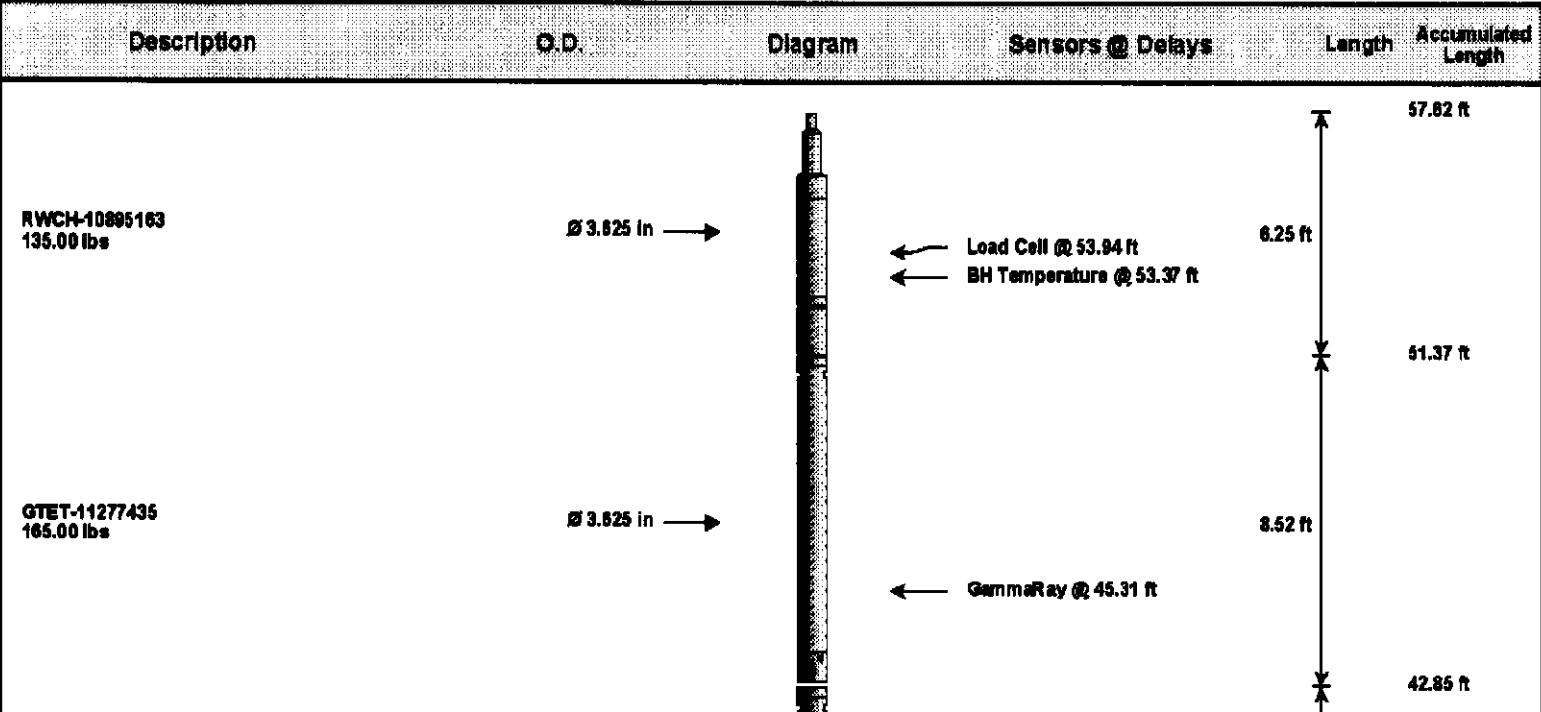
Event Type	Time & Date	Depth (ft)	Event Description
	17-Jun-10 18:38:46	679.50	Logging 001 17-Jun-10 18:38 Up @679.5f
	17-Jun-10 18:44:38	370.09	Halting 001 17-Jun-10 18:38 Up @679.5f
	17-Jun-10 18:46:39	203.50	Logging 002 17-Jun-10 18:46 Dn @203.5f
	17-Jun-10 19:16:59	6047.22	Halting 002 17-Jun-10 18:46 Dn @203.5f
	17-Jun-10 19:17:15	6056.00	Logging 003 17-Jun-10 19:17 Up @6056.0f
	17-Jun-10 19:26:12	5644.35	Halting 003 17-Jun-10 19:17 Up @6056.0f
	17-Jun-10 19:32:25	6053.25	Logging 004 17-Jun-10 19:32 Up @6053.3f

Data: PETRO_UYE_20_110001 IQ_TRIPLEHW11255

Date: 17-Jun-10 20:04:02

HALLIBURTON

TOOL STRING DIAGRAM REPORT



DSNT-10813523
174.00 lbs

Ø 3.825 in →

9.69 ft

← DSN Far @ 35.91 ft
← DSN Near @ 35.16 ft

33.16 ft

SDLT-10895353
360.00 lbs

Ø 4.500 in →

10.81 ft

Ø 4.750 in →

SDL Microlog @ 25.35 ft
SDL Caliper @ 25.16 ft
SDL @ 25.15 ft

22.35 ft

← Mud Resistivity @ 15.96 ft

ACRT-12078842
250.00 lbs

Ø 3.825 in →

19.25 ft

← ACRT @ 11.98 ft

← SP @ 4.38 ft

3.10 ft

Hole Finder-MULE_SHOE
50.00 lbs

Ø 2.800 in →

3.10 ft

Ø 3.825 in →

0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	10895163	135.00	6.25	51.37	300.00
GTET	Gamma Telemetry Tool	11277435	165.00	6.52	42.85	60.00
DSNT	Dual Spaced Neutron	10813523	174.00	9.69	33.16	60.00
DCNT	DSN Decentralizer	10813523	6.60	5.13	* 36.49	300.00
SDLT	Spectral Density Tool	10895353	360.00	10.81	22.35	60.00
ACRT	Array Compensated True Resistivity	12078842	250.00	19.25	3.10	300.00
SP	SP Ring	1	0.00	0.25	* 4.38	300.00
HFND	Hole Finder	MULE_SHOE	50.00	3.10	0.00	300.00

Total

1,140.00 57.82

* Not included in Total Length and Length Accumulation.

COMPANY PETROGLYPH OPERATING COMPANY

WELL UTE TRIBAL 20-11

FIELD ANTELOPE CREEK

COUNTY DUCHESNE STATE UTAH

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY

TGS A2D
GEOPHYSICAL SURVEY

Relax®

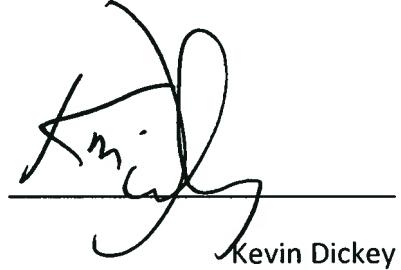
ATTACHMENT NO. 9

LIST OF OWNERS AND AFFIDAVIT NOTIFICATION

AFFIDAVIT OF MAILING

I, Kevin Dickey, Vice President, Operations, Petroglyph Energy, being first duly sworn, depose and state as follows: On July 24th, 2015, I caused to be mailed by certified mail, postage prepaid, return receipt requested, a copy of the Application to convert 1 well that appears on the attached sheet to water injection for enhanced recovery. It was sent to all parties who have an interest within ¼ mile radius from this well. The attached list contains the names of all parties who were notified.

Dated on this 24th day of July, 2015



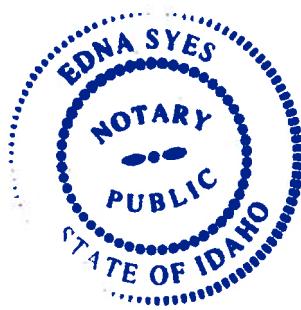
Kevin Dickey

Vice President, Operations

Petroglyph Energy

The forgoing affidavit was subscribed and sworn to before me by Kevin Dickey.

This 24 day of July, 2015.



Edna Syes
Notary Public

July 24th, 2015**Mineral, Surface, and Working Interest Owners**

To Whom It May Concern,

On July 24th, 2015 Petroglyph Energy Inc. submitted to the Environmental Protection Agency an application requesting approval to convert 19 wells to water injection wells in an enhanced recovery program. The well(s) which were submitted are all located in Antelope Creek Field which is operated under a Cooperative Plan of Development between the Ute Tribe and Petroglyph Energy.

Owners at Well's Location

Mineral: Ute Tribe

Operator: Petroglyph

Surface: Ute Tribe

Working Interest: Petroglyph 100%

Owners within Well's ¼ mile radius

No others

No others

No others

Anyone who would be directly and adversely affected by the authorization of the underground disposal into the Upper Green River formation may file a written request for a public hearing before the EPA. Logs and additional information on the subject wells are on file with the EPA, Groundwater Program, Mail Code 8P-W-UIC, 1595 Wynkoop St, Denver, Colorado 80202-1129.

Please contact Kevin Dickey at 208-685-7600 if you have any questions.

Sincerely,

Kevin Dickey

Vice President, Operations, Petroglyph Energy

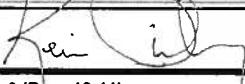
Enclosure

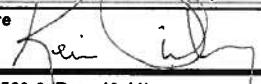
PETROGLYPH OPERATING COMPANY, INC.

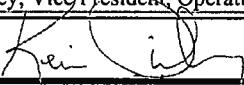
ANTELOPE CREEK FIELD

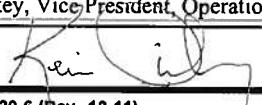
WELLS TO BE CONVERTED TO INJECTION

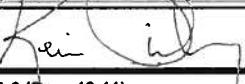
Well Name and Number	Footages	Section, Township, and Range
Ute Tribal 03-05	SHL: 2871' FNL & 752' FWL BHL: 2340' FNL & 684' FWL	3, T5S-R3W
Ute Tribal 03-12	2272' FSL & 575' FWL	3, T5S-R3W
Ute Tribal 08-11	2187' FSL 2011' FWL	8, T5S-R3W
Ute Tribal 08-12	2100' FSL & 515' FWL	8, T5S-R3W
Ute Tribal 09-01	770' FNL & 1059' FEL	9, T5S-R3W
Ute Tribal 09-04	585' FNL & 722' FWL	9, T5S-R3W
Ute Tribal 10-03	600' FNL & 1650' FWL	10, T5S-R3W
Ute Tribal 17-04	697' FNL & 636' FWL	17, T5S-R3W
Ute Tribal 17-05	1797' FNL & 620' FWL	17, T5S-R3W
Ute Tribal 17-12	2527' FSL & 612' FWL	17, T5S-R3W
Ute Tribal 20-06	2050' FNL & 1950' FWL	20, T5S-R3W
Ute Tribal 20-07	1980' FNL & 1980' FEL	20, T5S-R3W
Ute Tribal 20-11	1959' FSL & 2033' FWL	20, T5S-R3W
Ute Tribal 20-15	574' FSL & 1806' FEL	20, T5S-R3W
Ute Tribal 31-03	422' FNL & 2338' FWL	31, T5S-R3W
Ute Tribal 31-05	1980' FNL & 660' FWL	31, T5S-R3W
Ute Tribal 31-07	1976' FNL & 2168' FEL	31, T5S-R3W
Ute Tribal 31-12	1999' FSL & 748' FWL	31, T5S-R3W
Ute Tribal 36-08-E4	1796' FNL & 713' FEL	36, T5S-R4W

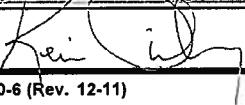
United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>																	
I. EPA ID Number <input type="text"/> U <input type="text"/> T/A <input type="text"/> C																	
Read Attached Instructions Before Starting For Official Use Only																	
Application approved mo day year			Date received mo day year			Permit Number <input type="text"/>			Well ID <input type="text"/>			FINDS Number <input type="text"/>					
II. Owner Name and Address Owner Name <input type="text"/> Petroglyph Energy, Inc.																	
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600				Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600					
City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707			City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707		
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A Operating		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 03-05								
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain <input type="text"/>						D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R							
<input type="text"/> II		<input type="text"/> R															
XI. Location of Well(s) or Approximate Center of Field or Project																	
Latitude Deg Min Sec			Longitude Deg Min Sec			Township and Range Sec Twp Range 1/4 Sec Feet From Line Feet From Line			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No								
<input type="text"/> 3			<input type="text"/> 5S			<input type="text"/> 3W			<input type="text"/> NW								
XII. Indian Lands (Mark 'x')																	
XIII. Attachments <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
XIV. Certification																	
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)																	
A. Name and Title (Type or Print) <input type="text"/> Kevin Dickey Vice President, Operations																	
B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600																	
C. Signature 																	
D. Date Signed <input type="text"/> 07/27/2015																	

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>														
I. EPA ID Number <input type="text"/> U <input type="checkbox"/> T/A <input type="checkbox"/> C														
Read Attached Instructions Before Starting For Official Use Only														
Application approved mo day year			Date received mo day year			Permit Number <input type="text"/>			Well ID <input type="text"/>			FINDS Number <input type="text"/>		
II. Owner Name and Address Owner Name <input type="text"/> Petroglyph Energy, Inc.														
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number <input type="text"/> (208) 685-7600								
City <input type="text"/> Boise			State <input type="text"/> ID			ZIP CODE <input type="text"/> 83707			City <input type="text"/> Boise			State <input type="text"/> ID		
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator			<input type="text"/>					
VIII. Well Status (Mark "x")														
<input checked="" type="checkbox"/> A Operating			<input checked="" type="checkbox"/> Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)														
<input type="checkbox"/> A. Individual			<input checked="" type="checkbox"/> B. Area			Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 03-12		
X. Class and Type of Well (see reverse)														
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain <input type="text"/>						D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R				
<input type="text"/> II		<input type="text"/> R												
XI. Location of Well(s) or Approximate Center of Field or Project														
Latitude Deg Min Sec <input type="text"/> <input type="text"/> <input type="text"/>			Longitude Deg Min Sec <input type="text"/> <input type="text"/> <input type="text"/>			Township and Range Sec Twp Range 1/4 Sec Feet From Line Feet From Line <input type="text"/> 3 SS 3W SW <input type="text"/> <input type="text"/>						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
XII. Indian Lands (Mark 'x')														
XIII. Attachments <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.														
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B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600														
C. Signature 														
D. Date Signed <input type="text"/> 07/27/2015														

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
I. EPA ID Number <input type="text"/> U <input type="text"/> T/A <input type="text"/> C													
Read Attached Instructions Before Starting For Official Use Only													
Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number			
<input type="text"/>			<input type="text"/>			<input type="text"/>		<input type="text"/>		<input type="text"/>			
II. Owner Name and Address						III. Operator Name and Address							
Owner Name <input type="text"/> Petroglyph Energy, Inc.						Owner Name <input type="text"/> Petroglyph Energy, Inc.							
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600		Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600			
City <input type="text"/> Boise			State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707		City <input type="text"/> Boise			State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707	
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator			<input type="text"/>				
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A <input type="checkbox"/> Operating		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 08-11				
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain <input type="text"/>					D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R				
<input type="text"/> II		<input type="text"/> R											
XI. Location of Well(s) or Approximate Center of Field or Project													
Latitude Deg Min Sec			Longitude Deg Min Sec			Township and Range Sec Twp Range <input type="text"/> 8 SS 3W 1/4 Sec Feet From Line <input type="text"/> SW <input type="text"/> <input type="text"/>			XII. Indian Lands (Mark 'x') <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
XIII. Attachments													
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
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C. Signature 													
D. Date Signed <input type="text"/> 07/27/2015													

 <p>United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i></p>		I. EPA ID Number			
		U	T/A C		
Read Attached Instructions Before Starting For Official Use Only					
Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707
IV. Commercial Facility	V. Ownership	VI. Legal Contact		VII. SIC Codes	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	<input type="text"/>		
VIII. Well Status (Mark "x")					
<input checked="" type="checkbox"/> A Operating	Date Started mo day year <input type="text"/>	<input checked="" type="checkbox"/> B. Modification/Conversion	<input type="checkbox"/> C. Proposed		
IX. Type of Permit Requested (Mark "x" and specify if required)					
<input type="checkbox"/> A. Individual	<input checked="" type="checkbox"/> B. Area	Number of Existing Wells <input type="text"/> 111	Number of Proposed Wells <input type="text"/> 1	Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 08-12	
X. Class and Type of Well (see reverse)					
A. Class(es) (enter code(s)) <input type="text"/> II	B. Type(s) (enter code(s)) <input type="text"/> R	C. If class is "other" or type is code 'x,' explain <input type="text"/>		D. Number of wells per type (If area permit) 1 well, type R	
XI. Location of Well(s) or Approximate Center of Field or Project					XII. Indian Lands (Mark 'x') <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Latitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>	Longitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>	Township and Range Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> 8 <input type="text"/> SS <input type="text"/> 3W <input type="text"/> SW <input type="text"/>		Feet From <input type="text"/>	Line <input type="text"/> Feet From <input type="text"/> Line <input type="text"/>
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations			B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600		
C. Signature 			D. Date Signed <input type="text"/> 07/27/2015		

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
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Application approved mo day year			Date received mo day year			Permit Number			Well ID		FINDS Number		
II. Owner Name and Address													
Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.							
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707			
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator							
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-01				
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s)) II		B. Type(s) (enter code(s)) R		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R				
XI. Location of Well(s) or Approximate Center of Field or Project													
Latitude			Longitude			Township and Range							
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Sec <input type="text"/>	Twp <input type="text"/>	Range <input type="text"/>	1/4 Sec <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No													
XIII. Attachments <i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.													
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C. Signature 													
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												T/A	C					
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City Boise			State ID			ZIP CODE 83707			City Boise			State ID			ZIP CODE 83707			
IV. Commercial Facility				V. Ownership				VI. Legal Contact				VII. SIC Codes						
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator										
VIII. Well Status (Mark "x")																		
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed										
IX. Type of Permit Requested (Mark "x" and specify if required)																		
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 09-04								
X. Class and Type of Well (see reverse)																		
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain								D. Number of wells per type (if area permit)						
II		R										1 well, type R						
XI. Location of Well(s) or Approximate Center of Field or Project														XII. Indian Lands (Mark 'x')				
Latitude			Longitude			Township and Range										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line					
						9	SS	3W	NW									
XIII. Attachments																		
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)																		
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																		
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Kevin Dickey, Vice President, Operations										(208) 685-7600								
C. Signature										D. Date Signed								
										07/27/2015								



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**

(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number		
U	T/A	C

**Read Attached Instructions Before Starting
 For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address			III. Operator Name and Address		
Owner Name Petroglyph Energy, Inc.			Owner Name Petroglyph Energy, Inc.		
Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600	Street Address 960 Broadway Ave. Suite 500 PO Box 70019		Phone Number (208) 685-7600
City Boise	State ID	ZIP CODE 83707	City Boise	State ID	ZIP CODE 83707
IV. Commercial Facility		V. Ownership		VI. Legal Contact	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other		<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator	
VII. SIC Codes					

VIII. Well Status (Mark "x")			
<input checked="" type="checkbox"/> A <input type="checkbox"/> B Operating	Date Started mo day year 111	<input checked="" type="checkbox"/> B. Modification/Conversion 1	<input type="checkbox"/> C. Proposed Antelope Creek Ute Tribal 10-03

IX. Type of Permit Requested (Mark "x" and specify if required)					
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1	
Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 10-03					

X. Class and Type of Well (see reverse)					
A. Class(es) (enter code(s)) II	B. Type(s) (enter code(s)) R	C. If class is "other" or type is code 'x,' explain 			D. Number of wells per type (if area permit) 1 well, type R

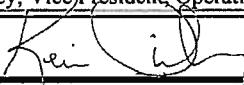
XI. Location of Well(s) or Approximate Center of Field or Project										XII. Indian Lands (Mark 'x')			
Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						10	SS	3W	NW				

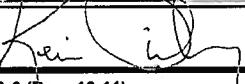
XIII. Attachments													
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(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XIV. Certification													
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A. Name and Title (Type or Print) Kevin Dickey, Vice-President, Operations							B. Phone No. (Area Code and No.) (208) 685-7600						
C. Signature 							D. Date Signed 07/27/2015						

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>													
Read Attached Instructions Before Starting For Official Use Only													
Application approved mo day year			Date received mo day year			Permit Number		Well ID		FINDS Number			
II. Owner Name and Address						III. Operator Name and Address							
Owner Name Petroglyph Energy, Inc.						Owner Name Petroglyph Energy, Inc.							
Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600			
City Boise		State ID		ZIP CODE 83707		City Boise		State ID		ZIP CODE 83707			
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes				
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator							
VIII. Well Status (Mark "x")													
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed					
IX. Type of Permit Requested (Mark "x" and specify if required)													
<input type="checkbox"/> A. Individual			<input checked="" type="checkbox"/> B. Area		Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-04				
X. Class and Type of Well (see reverse)													
A. Class(es) (enter code(s)) II		B. Type(s) (enter code(s)) R		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R					
XI. Location of Well(s) or Approximate Center of Field or Project													
Latitude			Longitude			Township and Range						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						17	5S	3W	NW				
XII. Indian Lands (Mark 'x')													
XIII. Attachments													
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C. Signature 						D. Date Signed 07/27/2015							

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number					
												T/A		C			
U																	
Read Attached Instructions Before Starting For Official Use Only																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
II. Owner Name and Address												III. Operator Name and Address					
Owner Name Petroglyph Energy, Inc.												Owner Name Petroglyph Energy, Inc.					
Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600		
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707					
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 17-05								
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R								
II		R															
XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')					
Latitude			Longitude			Township and Range									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line				
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Kevin Dickey, Vice President, Operations												(208) 685-7600					
C. Signature												D. Date Signed					
												07/27/2015					



United States Environmental Protection Agency
**Underground Injection Control
 Permit Application**
(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)

I. EPA ID Number

T/A	C
U	

**Read Attached Instructions Before Starting
 For Official Use Only**

Application approved mo day year	Date received mo day year	Permit Number	Well ID	FINDS Number

II. Owner Name and Address**III. Operator Name and Address**

Owner Name
 Petroglyph Energy, Inc.

Owner Name
 Petroglyph Energy, Inc.

Street Address
 960 Broadway Ave. Suite 500 PO Box 70019

Phone Number
 (208) 685-7600

Street Address
 960 Broadway Ave. Suite 500 PO Box 70019

Phone Number
 (208) 685-7600

City
 Boise

State
 ID

ZIP CODE
 83707

City
 Boise

State
 ID

ZIP CODE
 83707

IV. Commercial Facility**V. Ownership****VI. Legal Contact****VII. SIC Codes**

Yes
 No

Private
 Federal
 Other

Owner
 Operator

--	--	--

VIII. Well Status (Mark "x")

A
 Operating

Date Started
mo day year

B. Modification/Conversion

C. Proposed

IX. Type of Permit Requested (Mark "x" and specify if required)

A. Individual

B. Area

Number of Existing Wells

111

Number of Proposed Wells

1

Name(s) of field(s) or project(s)

Antelope Creek
 Ute Tribal 17-12

X. Class and Type of Well (see reverse)

A. Class(es)
 (enter code(s))

B. Type(s)
 (enter code(s))

C. If class is "other" or type is code 'x,' explain

D. Number of wells per type (if area permit)

1 well, type R

II

R

XI. Location of Well(s) or Approximate Center of Field or Project**XII. Indian Lands (Mark 'x')**

Latitude			Longitude			Township and Range							
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line
						17	5S	3W	SW				

Yes
 No

XIII. Attachments

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

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A. Name and Title (Type or Print)

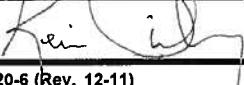
Kevin Dickey, Vice President, Operations

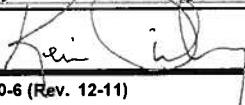
B. Phone No. (Area Code and No.)

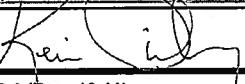
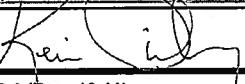
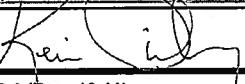
(208) 685-7600

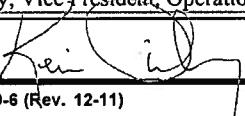
C. Signature
D. Date Signed

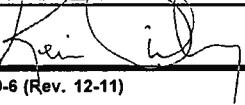
07/27/2015

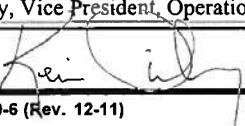
United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number <input type="text"/> U <input type="text"/> <input type="checkbox"/> T/A <input type="checkbox"/> C										
Read Attached Instructions Before Starting For Official Use Only																						
Application approved mo day year			Date received mo day year			Permit Number <input type="text"/>			Well ID <input type="text"/>			FINDS Number <input type="text"/>										
II. Owner Name and Address Owner Name <input type="text"/> Petroglyph Energy, Inc.												III. Operator Name and Address Owner Name <input type="text"/> Petroglyph Energy, Inc.										
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600			Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number <input type="text"/> (208) 685-7600											
City <input type="text"/> Boise			State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707		City <input type="text"/> Boise			State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707										
IV. Commercial Facility <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			V. Ownership <input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			VI. Legal Contact <input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator			VII. SIC Codes <input type="text"/>													
VIII. Well Status (Mark "x") <input checked="" type="checkbox"/> A Date Started mo day year Operating <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed																
IX. Type of Permit Requested (Mark "x" and specify if required) <input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area Number of Existing Wells <input type="text"/> 111 Number of Proposed Wells <input type="text"/> 1 Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 20-06																						
X. Class and Type of Well (see reverse) <table border="1"> <tr> <td>A. Class(es) (enter code(s))</td> <td>B. Type(s) (enter code(s))</td> <td>C. If class is "other" or type is code 'x,' explain <input type="text"/></td> <td>D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R </td> </tr> <tr> <td>II</td> <td>R</td> <td></td> <td></td> </tr> </table>															A. Class(es) (enter code(s))	B. Type(s) (enter code(s))	C. If class is "other" or type is code 'x,' explain <input type="text"/>	D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R	II	R		
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Latitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>			Longitude Deg <input type="text"/> Min <input type="text"/> Sec <input type="text"/>			Township and Range Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> 20 SS 3W			1/4 Sec <input type="text"/> Feet From <input type="text"/> Line <input type="text"/> NW													
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C. Signature 												D. Date Signed <input type="text"/> 07/27/2015										

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City Boise			State ID			ZIP CODE 83707			City Boise			State ID			ZIP CODE 83707				
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VIII. Well Status (Mark "x")																			
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<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-07									
X. Class and Type of Well (see reverse)																			
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R										
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Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line						
			20	55			3W	NE											
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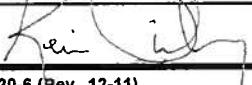
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<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area			Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-11						
X. Class and Type of Well (see reverse)															
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R							
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Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line		
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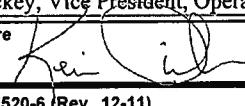
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Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019				Phone Number (208) 685-7600	
City Boise			State ID	ZIP CODE 83707		City Boise			State ID	ZIP CODE 83707	
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes		
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator					
VIII. Well Status (Mark "x")											
<input checked="" type="checkbox"/> A <small>Operating</small>		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed			
IX. Type of Permit Requested (Mark "x" and specify if required)											
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111		Number of Proposed Wells 1		Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 20-15			
X. Class and Type of Well (see reverse)											
A. Class(es) (enter code(s)) II		B. Type(s) (enter code(s)) R		C. If class is "other" or type is code 'x,' explain				D. Number of wells per type (if area permit) 1 well, type R			
XI. Location of Well(s) or Approximate Center of Field or Project											
Latitude			Longitude			Township and Range					
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line
						20	SS	3W	SE		
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											
XIII. Attachments											
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.											
XIV. Certification											
I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)											
A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations						B. Phone No. (Area Code and No.) (208) 685-7600					
C. Signature 						D. Date Signed 07/27/2015					

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number			
												T/A		C	
												U			
Read Attached Instructions Before Starting For Official Use Only															
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number			
II. Owner Name and Address												III. Operator Name and Address			
Owner Name <input type="text" value="Petroglyph Energy, Inc."/>												Owner Name <input type="text" value="Petroglyph Energy, Inc."/>			
Street Address <input type="text" value="960 Broadway Ave. Suite 500 PO Box 70019"/>				Phone Number <input type="text" value="(208) 685-7600"/>			Street Address <input type="text" value="960 Broadway Ave. Suite 500 PO Box 70019"/>				Phone Number <input type="text" value="(208) 685-7600"/>				
City <input type="text" value="Boise"/>			State <input type="text" value="ID"/>		ZIP CODE <input type="text" value="83707"/>		City <input type="text" value="Boise"/>			State <input type="text" value="ID"/>		ZIP CODE <input type="text" value="83707"/>			
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes						
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator									
VIII. Well Status (Mark "x")															
<input checked="" type="checkbox"/> A Operating		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed							
IX. Type of Permit Requested (Mark "x" and specify if required)															
<input type="checkbox"/> A. Individual				<input checked="" type="checkbox"/> B. Area		Number of Existing Wells <input type="text" value="111"/>		Number of Proposed Wells <input type="text" value="1"/>		Name(s) of field(s) or project(s) <input type="text" value="Antelope Creek Ute Tribal 31-03"/>					
X. Class and Type of Well (see reverse)															
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain <input type="text"/>								D. Number of wells per type (if area permit) <input type="text" value="1 well, type R"/>			
II		R													
XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')			
Latitude <input type="text"/> Deg <input type="text"/> Min <input type="text"/> Sec			Longitude <input type="text"/> Deg <input type="text"/> Min <input type="text"/> Sec			Township and Range <input type="text"/> Sec <input type="text"/> Twp <input type="text"/> Range <input type="text"/> 1/4 Sec <input type="text"/> NW						<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
XIII. Attachments															
<p><i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i></p> <p>For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.</p>															
XIV. Certification															
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A. Name and Title (Type or Print) <input type="text" value="Kevin Dickey, Vice President, Operations"/>												B. Phone No. (Area Code and No.) <input type="text" value="(208) 685-7600"/>			
C. Signature 												D. Date Signed <input type="text" value="07/27/2015"/>			

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number					
												T/A		C			
U																	
<i>Read Attached Instructions Before Starting For Official Use Only</i>																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
II. Owner Name and Address												III. Operator Name and Address					
Owner Name Petroglyph Energy, Inc.												Owner Name Petroglyph Energy, Inc.					
Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600		
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707					
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A Operating		Date Started mo day year 			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-05							
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain 								D. Number of wells per type (if area permit) 1 well, type R					
II		R															
XI. Location of Well(s) or Approximate Center of Field or Project																	
Latitude Deg Min Sec			Longitude Deg Min Sec			Township and Range Sec Twp Range 1/4 Sec 31 5S 3W NW									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
XII. Indian Lands (Mark 'x')																	
XIII. Attachments																	
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations												B. Phone No. (Area Code and No.) (208) 685-7600					
C. Signature 												D. Date Signed 07/27/2015					

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number					
												<input type="checkbox"/> T/A	<input type="checkbox"/> C				
U																	
Read Attached Instructions Before Starting For Official Use Only																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>			<input type="text"/>					
II. Owner Name and Address												III. Operator Name and Address					
Owner Name <input type="text"/> Petroglyph Energy, Inc.												Owner Name <input type="text"/> Petroglyph Energy, Inc.					
Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number <input type="text"/> (208) 685-7600			Street Address <input type="text"/> 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number <input type="text"/> (208) 685-7600		
City <input type="text"/> Boise				State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707			City <input type="text"/> Boise				State <input type="text"/> ID		ZIP CODE <input type="text"/> 83707		
IV. Commercial Facility				V. Ownership				VI. Legal Contact				VII. SIC Codes					
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other				<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator				<input type="text"/>					
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A <input type="checkbox"/> Operating		Date Started mo day year <input type="text"/>			<input checked="" type="checkbox"/> B. Modification/Conversion <input type="checkbox"/>			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells <input type="text"/> 111			Number of Proposed Wells <input type="text"/> 1			Name(s) of field(s) or project(s) <input type="text"/> Antelope Creek <input type="text"/> Ute Tribal 31-07							
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s)) <input type="text"/> II			B. Type(s) (enter code(s)) <input type="text"/> R			C. If class is "other" or type is code 'x,' explain <input type="text"/>						D. Number of wells per type (if area permit) <input type="text"/> 1 well, type R					
XI. Location of Well(s) or Approximate Center of Field or Project																	
Latitude			Longitude			Township and Range											
Deg <input type="text"/>	Min <input type="text"/>	Sec <input type="text"/>	Deg <input type="text"/> 31	Min <input type="text"/> 5S	Sec <input type="text"/> 3W	Twp <input type="text"/> NE	Range <input type="text"/>	1/4 Sec <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>	Feet From <input type="text"/>	Line <input type="text"/>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
XII. Indian Lands (Mark 'x')																	
XIII. Attachments (Complete the following questions on a separate sheet(s) and number accordingly; see instructions)																	
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
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A. Name and Title (Type or Print) <input type="text"/> Kevin Dickey, Vice President, Operations												B. Phone No. (Area Code and No.) <input type="text"/> (208) 685-7600					
C. Signature 												D. Date Signed <input type="text"/> 07/27/2015					

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number U	T/A	C			
<i>Read Attached Instructions Before Starting For Official Use Only</i>																	
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number					
II. Owner Name and Address												III. Operator Name and Address					
Owner Name Petroglyph Energy, Inc.												Owner Name Petroglyph Energy, Inc.					
Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600			Street Address 960 Broadway Ave. Suite 500 PO Box 70019						Phone Number (208) 685-7600		
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707					
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes								
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator											
VIII. Well Status (Mark "x")																	
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed									
IX. Type of Permit Requested (Mark "x" and specify if required)																	
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 31-12							
X. Class and Type of Well (see reverse)																	
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain					D. Number of wells per type (if area permit) 1 well, type R								
II		R															
XI. Location of Well(s) or Approximate Center of Field or Project												XII. Indian Lands (Mark 'x')					
Latitude			Longitude			Township and Range									<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line				
						31	5S	3W	SW								
XIII. Attachments																	
<i>(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)</i> For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A-U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																	
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A. Name and Title (Type or Print)												B. Phone No. (Area Code and No.)					
Kevin Dickey, Vice President, Operations												<input type="text" value="Area Code and No."/> <input type="text" value="208 685-7600"/>					
C. Signature												D. Date Signed					
												<input type="text" value="07/27/2015"/>					

United States Environmental Protection Agency Underground Injection Control Permit Application <i>(Collected under the authority of the Safe Drinking Water Act. Sections 1421, 1422, 40 CFR 144)</i>												I. EPA ID Number				
												T/A	C			
												U				
Read Attached Instructions Before Starting For Official Use Only																
Application approved mo day year			Date received mo day year			Permit Number			Well ID			FINDS Number				
II. Owner Name and Address										III. Operator Name and Address						
Owner Name Petroglyph Energy, Inc.										Owner Name Petroglyph Energy, Inc.						
Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600		Street Address 960 Broadway Ave. Suite 500 PO Box 70019					Phone Number (208) 685-7600				
City Boise			State ID		ZIP CODE 83707		City Boise			State ID		ZIP CODE 83707				
IV. Commercial Facility			V. Ownership			VI. Legal Contact			VII. SIC Codes							
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No			<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> Other			<input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator										
VIII. Well Status (Mark "x")																
<input checked="" type="checkbox"/> A Operating		Date Started mo day year			<input checked="" type="checkbox"/> B. Modification/Conversion			<input type="checkbox"/> C. Proposed								
IX. Type of Permit Requested (Mark "x" and specify if required)																
<input type="checkbox"/> A. Individual <input checked="" type="checkbox"/> B. Area				Number of Existing Wells 111			Number of Proposed Wells 1			Name(s) of field(s) or project(s) Antelope Creek Ute Tribal 36-08-E4						
X. Class and Type of Well (see reverse)																
A. Class(es) (enter code(s))		B. Type(s) (enter code(s))		C. If class is "other" or type is code 'x,' explain						D. Number of wells per type (if area permit)						
II		R								1 well, type R						
XI. Location of Well(s) or Approximate Center of Field or Project														XII. Indian Lands (Mark 'x')		
Latitude			Longitude			Township and Range										<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Deg	Min	Sec	Deg	Min	Sec	Sec	Twp	Range	1/4 Sec	Feet From	Line	Feet From	Line			
						36	5S	4W	NE							
XIII. Attachments																
(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)																
For Classes I, II, III, (and other classes) complete and submit on a separate sheet(s) Attachments A--U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.																
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A. Name and Title (Type or Print) Kevin Dickey, Vice President, Operations														B. Phone No. (Area Code and No.) (208) 685-7600		
C. Signature 														D. Date Signed 07/27/2015		

ATTACHMENT NO. 10

WELL BORE DIAGRAMS FOR THE UIC WELL

Ute Tribal 20-11 Well History

Well History:

Spud Well: 6/12/2010

Completed: 7/1/2010

First Production: 7/1/2010

Tops (KB):

BMSW* Found at 1458'

Green River 1496'

A Marker 4049'

X Marker 4535'

Douglas Creek 4677'

B Limestone 5058'

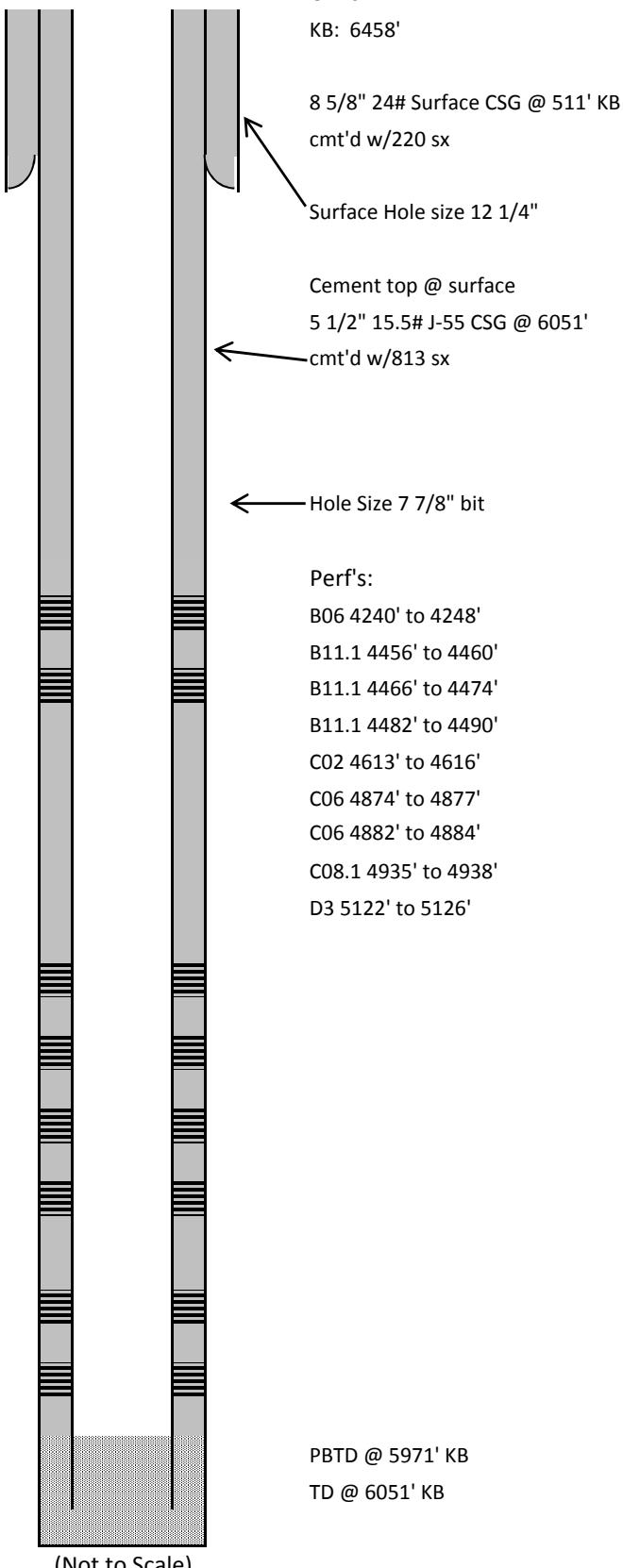
Castle Peak 5560'

Basal Carbonate 6029'

Perf History

6/23/2010

B06	4240' to 4248'
B11.1	4456' to 4460'
B11.1	4466' to 4474'
B11.1	4482' to 4490'
C02	4613' to 4616'
C06	4874' to 4877'
C06	4882' to 4884'
C08.1	4935' to 4938'
D3	5122' to 5126'



Petroglyph Operating Co., Inc.

Ute Tribal #20-11

(1959' FSL & 2033' FWL)

NE SW Section 20, 5S- 3W

Antelope Creek Field

Duchesne Co. Utah

API#: 43013340490000

*Plate 1 Utah Geological Survey Special Study 144.
(2012). *BMSW Elevation Contour Map, Uinta Basin, Utah.* [map]. (CA 1:200,000)

Ute Tribal 20-11 Injection

Well History:

Spud Well: 6/12/2010
 Completed: 7/1/2010
 First Production: 7/1/2010

Tops (KB):

BMSW* Found at 1458'

Green River 1496'

A Marker 4049'

X Marker 4535'

Douglas Creek 4677'

B Limestone 5058'

Castle Peak 5560'

Basal Carbonate 6029'

Injection packer @ 4150'

GL: 6444'

KB: 6458'

8 5/8" 24# Surface CSG @ 511' KB

cmt'd w/220 sx

Surface Hole size 12 1/4"

Cement top @ surface

5 1/2" 15.5# J-55 CSG @ 6051'

cmt'd w/813 sx

Tubing 2 7/8" 6.5# J55

Hole Size 7 7/8" bit

Perf's:

B06 4240' to 4248'

B11.1 4456' to 4460'

B11.1 4466' to 4474'

B11.1 4482' to 4490'

C02 4613' to 4616'

C06 4874' to 4877'

C06 4882' to 4884'

C08.1 4935' to 4938'

D3 5122' to 5126'

Petroglyph Operating Co., Inc.

Ute Tribal #20-11

(1959' FSL & 2033' FWL)

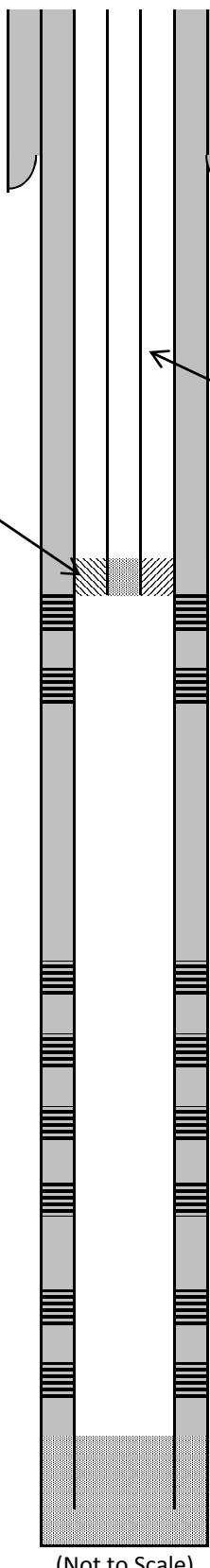
NE SW Section 20, 5S- 3W

Antelope Creek Field

Duchesne Co. Utah

API#: 43013340490000

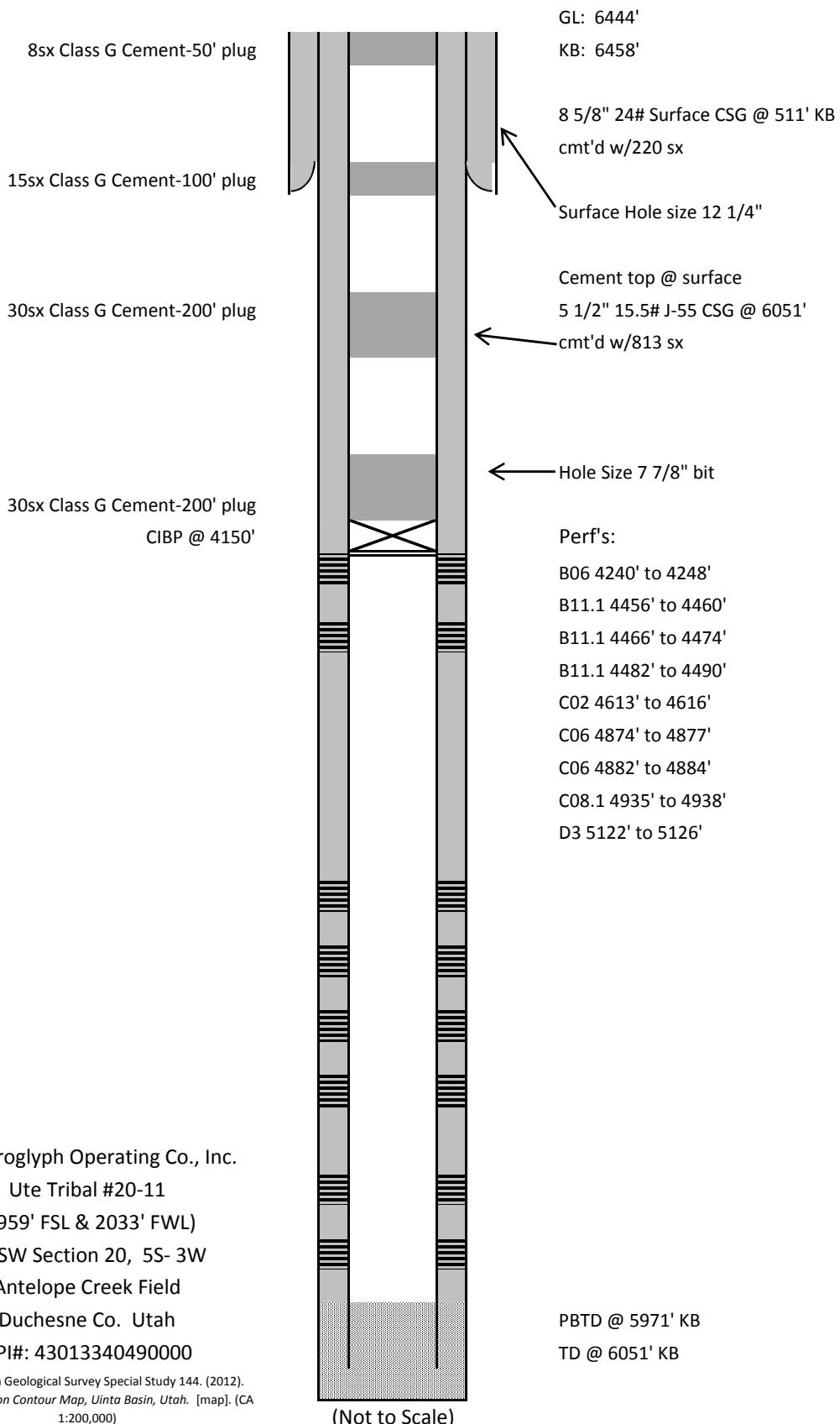
*Plate 1 Utah Geological Survey Special Study 144. (2012).
BMSW Elevation Contour Map, Uinta Basin, Utah. [map]. (CA
 1:200,000)



PBTD @ 5971' KB

TD @ 6051' KB

Ute Tribal 20-11 Plug and Abandonment



*Plate 1 Utah Geological Survey Special Study 144. (2012).
BMSW Elevation Contour Map, Uinta Basin, Utah. [map]. (CA
1:200,000)

ATTACHMENT NO. 11

P&A PROCEDURE

Plug and Abandonment Procedure

Ute Tribal 20-11

43-013-34049

1. Obtain authorization from regulatory agencies for P&A procedures.
2. Set deadman. Rig up pulling unit. Rig down wellhead. Install BOP. Release packer. Trip out of hole with tubing and packer.
3. RIH Set CIBP @ 4150'.
4. Trip in hole with tubing. Establish pump rate, spot 30sxs Class G cement on top of CIBP. This will be a 200' plug.
5. Raise the tubing to 1820' and set balanced 200' cement plug using 30sxs of Class G cement.
6. Raise the tubing to 511' and set balanced 100' cement plug using 15sxs of Class G cement.
7. Set balanced 50' cement plug (8sxs of Class G cement) from 50' to surface.
8. Cut off wellhead. Install plate and identification P&A post marker. Weld to casing.
9. File reports with the agencies and reclaim surface locations.

ATTACHMENT NO. 12

MIT PROCEDURE

Mechanical Integrity Test Procedure

Ute Tribal 20-11

43-013-34049

Integrity testing can be accomplished by pressuring up the annulus between the casing and the tubing. The pressure and duration of the test will be as required by the EPA.

Test Procedure Details:

1. Two weeks prior, notify EPA of pending work. Shut well in.
2. Record fluid level with echometer.
3. MIRU Service Unit.
4. POOH laying down rods and pump.
5. ND Wellhead. NU BOPs. POOH laying down 2 7/8" tubing.
6. PU plug and packer and new tubing. RIH and breakdown perfs.
7. POOH. RIH with injection packer to 4150'.
8. Reverse circulate in packer fluid.
9. Set packer and ND BOPs and NU wellhead.
10. Pressure test casing-tubing annulus to 1500psi for 15 minutes.
11. RDMO.
12. Notify EPA of test, wait for approval.
13. Return to injection.

ATTACHMENT NO. 13
SURETY BOND LETTER

**SURETY BOND STATEMENT**

July 27, 2015

Petroglyph currently operates 111 injection wells in Antelope Creek Field under EPA UIC Area Permit UT2736-00000. The existing wells are covered by UIC Bond No. LPM 4138351.

Prior to final permit approval, Petroglyph will add a rider to the existing bond to include this well along with the other wells being submitted to EPA at this time.

Kevin Dickey

V.P., Operations

Petroglyph Energy, Inc.

PETROGLYPH OPERATING COMPANY, INC.